

A Study to Improve the Efficiency in Collar and Cuff Section

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Abstract: For any garment industry the production and quality management or wastages reductions have a major impingement on overall factory economy. In garment industry maximum quality and production constraints arise in the sewing department. The minimization of reworks and line efficiency improvement in sewing department of any apparel industry for quality and production improvement plays a significant role on overall factory economy. It discusses the quality and line efficiency improvement of garment industry by applying quality tools such as checklist, cause and effect diagram, Traffic Light System and work measurement, line balancing techniques. The outcome of this observation depict that an industry may gain higher productivity and profitability, by reducing the costs and improving the quality constraints through minimization of rework activities and line efficiency improvement techniques.

Keywords: Efficiency, line balancing, sewing.

1. Introduction

Collar and cuff in shirts being the most critical operations have higher standard minute value. It is a very crucial operation so the operators do it with the utmost care, but this also affects the overall efficiency.

To overcome the problem, the work station layout has been changed, for this the process of aligning the components were changed. Suggestion of using both hands for sewing was done and a new disposal method can be implemented. For improving this process we do time study, method study and elemental time study.

Improving a new method which is convenient for the operator is important to increase the efficiency of the operator as well as for the production. Thinking on operator's point of view during the standardization of new method. Before that a deep study about their hand usage and operation is need. By this way the allocation of work will be easy according to their ability. The improvement percentage was compared with respect to the initial and final state. This work provides the guidelines to control the rejection and reworks through reduction of defects in garment industry by identifying the root causes and traffic light system. The purpose of the implementation is to reduce the reworks and improve production rate with improved quality and efficiency by eliminating loopholes of quality and production.

2. Methodology

A. Collar Section

1) Run collar stitch

Critical to quality: Ensure the collar cloth is tight enough to avoid fullness. Ensure horizontal and vertical match while placing lining and fabric.

Quality at source: Collar profile will make the shape perfect, Collar points will be sharp, Deskillling.

Procedure: Pick the top panel from the tray using right hand; place it on the profile by follow feature line and collar. Balancing and pin the panel. Then, pick and place interlining on pins. Close the profile, turn right side to left and place it under the pressure foot. Sew using profile guidance with start and stop back tack sew using profile guidance with start and stop back tack. Remove the profile from the pressure foot and open the profile. Pick up the collar using both hands.

2) Top stitch collar

Critical to quality: Ensure no over lapping while topstitching

Quality at source: Follow the pressure foot edge and guide

Procedure: Pick the collar using both hands and aligns it under the pressure foot. Start back tack and sew the side of the collar using the guidance of the sewing guide and stop as per the top stitch distance. Pivot the needle, swing the guide backward, turn the collar anticlockwise and reposition the swing guide. Stitch the top stitch while aligning the bottom panel by inserting left thumb into collar and with the right hand, feeling the edge to ensure that the bottom panel does not show on top side. Pivot the needle, swing the guide backward, turn the collar anticlockwise and reposition the swing guide. Sew the side of the collar using the guide back tack at the end. Turn the piece vertically and dispose by dropping into the side drop box with left hand.

3) Trim collar

Critical to quality: Ensure consistent seam margin during trim collar

Quality at source: Using the pressure foot the guide follow the stitch line.

Procedure: Using the pressure foot guide follow the stitch line for trimming. Place the collar in the front extension as shown. Pick up collar from the tray using both hands and place it under the pressure foot. Using the pressure foot front guide follow the run stitch and trim side of collar. Pivot the collar and

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use the pressure foot front guide follow the run stitch line and trim the top of the collar. Dispose using left hand in the left side in drop box.

4) Luna trim

Critical to quality: Fold collar symmetrically before cutting. Ensure that guides are the set exactly as per finish pattern

Quality at source: 1. using the aligning guide. Use of zigzag blade to avoid fraying

Procedure: Place the collar in front of the machine extension. Pick up the collar using both handle and fold it into half and align the edges. Place it under the trimming bed, align using the guide, and cut the collar bottom end. Pick it from the trimming place it at the front extension.

B. Cuff Section

Critical to quality: Horizontal line should be straight in stripes and checks. Same line to be maintained in both the cuff pieces.

Quality at source: Follow the notches to fold the hem margin. Achieve uniform margin by following the profile guide.

Procedure: Place the cuff top panels on the right side of the machine and interlining panel in the front extension. Pick the top panel with right hand and place horizontally in front of the pressure foot. Pick the interlining piece with both hands and align on the margin line and fold. Pick the panel with both hands and place it under the pressure foot with the fold intact. Sew using pressure foot as guide till end without bursts. Using left hand, dispose by sliding the piece into the side drop box in a vertical position. Simultaneously pick the next top panel with right hand.

1) Trim cuff

Critical to quality: Cut 7mm margin from stitch line.

Quality at source: Using the pressure foot guide follow stitch line.

Procedure: Place the cuff panels on both the sides. Pick the cuff panels with both hands and place the right end under the pressure foot. Using the pressure foot front guide follow the run stitch line and trim side of cuff. Turn the panel and trim the mitered area and turn and trim the top area. Turn the cuff and trim the mitered area and turn and trim the side area. using left hand, dispose the piece by sliding it into the side drop box vertically.

2) Top stitch

Critical to quality: Top stitch should be even. Bottom ply should not be visible on the top side.

Quality at source: Follow the compensated pressure foot. *Procedure:* Place the cuff panels in the front extension. Pick the cuff with both hands and place the right end of the panel under the pressure foot. Using the pressure foot guide, back tack and sew till the side. Pivot the cuff and sew mitered area. Pivot again and sew the top side. Pivot the cuff and sew mitered area. Pivot again and sew the side. Using left hand, dispose the piece by sliding it into the side drop box vertically.

C. Collar Section

- Collar and canvas are attached using template.
- Trimming the extra piece.

- Turning the cuff and fusing is done simultaneously.
- Pressing the collar and slit at the center.
- Preparing the third component and trimming the side of the second component.
- Attaching all the three components of the collar.
- Trimming the extra piece, pressing and turning the edge for both the sides.
- Ironing.
- End line checking.

D. Cuff Section Process

- Attaching the lining material with cuff panel.
- Aligning the cuff component using template and making a stitch.
- Folding the two corner and making a stitch.
- Trimming the raw edges.
- Turning the cuff.
- Topstitch on the component.

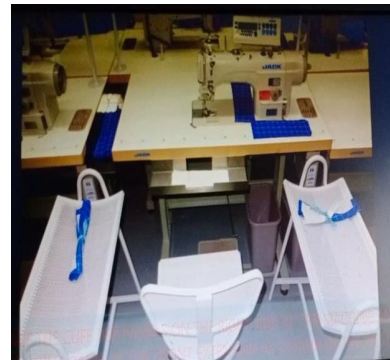


Fig. 1. New layout



Fig. 2. Hem cuff



Fig. 3. Trim cuff



Fig. 4. Top stitch

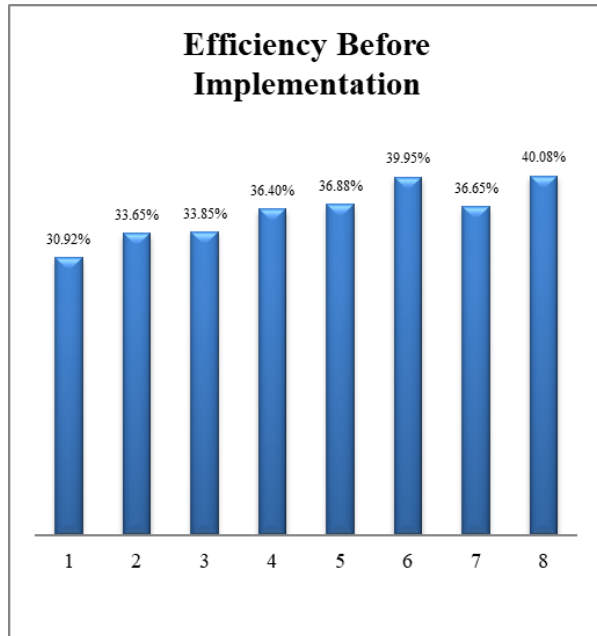


Fig. 5. Efficiency before implementation

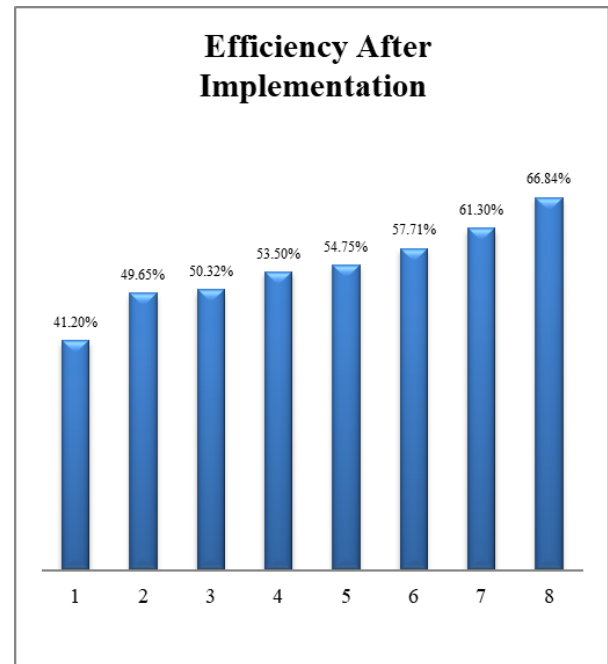


Fig. 6. Efficiency after implementation

3. Conclusion

This work provides the guidelines to control the rejection and reworks through reduction of defects in garment industry by identifying the root causes and traffic light system. The purpose of the implementation is improved quality and efficiency by eliminating loopholes of quality and production. The outcome of this observation depict that an industry may gain higher productivity and profitability, by reducing the costs and improving the quality constraints through minimization if rework activities and line efficiency improvement techniques.

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