

Different Types of Defects Identification and Controlling Method for Quality and Productivity Improvement

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Abstract: Defects means the contents involve in a product which accede measurable limits. Quality is the demands and when it fulfils then it gives customer satisfaction and also enhances standard of a product. Whether the defect and quality is maintained also improve productivity. The goal of this research is to identify the defects for quality and productivity improvement by controlling imperfection. That means it gives details idea that how sewing defects look like and its possible solution. Moreover if identification processes are going on accurately then the defect does not occurred again or the possibility of sewing defects can be minimized. By identifying defects it would be possible to minimize the fault and production loss. Defects found after sewing adversely affects economical factor also. So there is distinct advantage to identify on observe a defect before complete the full garments. Because its adds seam removal or re sewing at the production process which increases the possibility of product rejection. So the paper works for detecting defects and find out the solution how to deduct the amount of error. Because once fault is detected it cannot be ignored, it is obvious for sustaining the quality of product to meet consumer needs.

Descriptors: DETECTION, PRODUCTION, PROCESSING, COST REDUCTION, EFFECTS(MATERIALS), QUALITY CONTROL, PRODUCTIVITY, CLOTHING, FAULTS, TIMIZATION.

I. Introduction

The readymade garment is totally incomplete without sewing process. But sometimes there are different difficulties and the result is sewing defects. It is because of lack of proper skill, machine disturbance and improper machine a adjustment. Due to these obscurities fault occurred and effects quality, productivity, expense and also efficiency. So Quality standards are part of a firm standard operating procedure, product development and production planning . Standards reflects the overall intrinsic quality level the firm seeks to achieve. The fundamental purpose of using quality standard is to provide consistency between products and products line. Because of maintaining standard or quality of product it is mandatory to detect the fault and find out the best solution to diminish the error. Among the process control list, product control chart were used in the study. "Defect Detection", has the objective of identifying defect cause and impending real-time means of uncovering of faults. Rapid detection of a sewing defect is significant to optimization of the relationship between quality and productivity. Defects found after sewing negatively affect costs of the product. There is different plus to identifying a imperfection before other operations hinder seam removal and re sewing. This observation is based upon the current system in which the operator serves as the first line of quality control implementation. And other sewing stations have no operator to serve in the first line quality control position. Then finally assessment procedure of defect was done and find out the best suggestion.

II. Experimental

2.1 Bartack Missing



Where bartack does not appear at correct position or missing.

Recommended Solution :

- ❖ Make sure the bartacks are the proper length.
- ❖ Use proper width of the application.
- ❖ Observe operator handling.

2.2 Disappearing Stitches

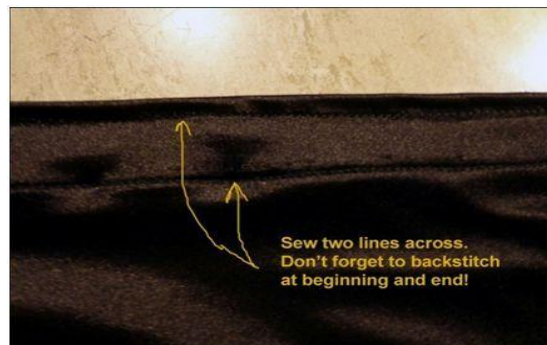


Disappearing Stitches is where woof direction of the fabric looks much larger than seams sewn in the warp direction.

Recommended Solution :-

- ❖ Top stitching has done by heavier thread size.
- ❖ Use longer stitch length.
- ❖ Top seam should be done by losing the tension as possible so the thread sits on top of the fabric.
- ❖ Stitch depth should not too shallow.

2.3 Bottom Hem



Where the stitching or width of bottom hem are not appropriate.

Recommended Solution :-

- ❖ Sew with minimum sewing tension.
- ❖ Make sure machine are set up properly for the fabric being sewn.
- ❖ Confirm for proper operator handling technique.
- ❖ The amount of fabric which feed into the folder not exceed limit because it tends hem to roll over.

2.4 Broken Stitch



Where the thread is being tear off when one seam crosses another seam.

Recommended Solution :-

- ❖ Thickness of thread on operations should be high.
- ❖ Stitch balance would be proper.
- ❖ 60% / 40% relationship of Needle thread to Loper thread is maintained in the Seam On a chain stitch seam on denim.
- ❖ Needle point should set according to fabric demand.
- ❖ Needles have to alter at regular basic.
- ❖ Monitor sewing operators for accurate material handling system.

2.5 Double Crease



Double crease is where hem is twisted in ropy hem appearance and not laying flat.

Recommended Solutions :-

- ❖ Before starting stitching operator must check hem is started correctly in the folder or not.
- ❖ Don't hold back extremely as the seam is being sewn.
- ❖ Apply least presser foot pressure.

2.6 Down Stitch / Fall Of Stitch



Where the stitch forming misses appropriate sewing direction and seam fall from fabric.

Recommended Solution :-

- ❖ Sewing operators must have correct material handling techniques.
- ❖ Make sure the patterns/guide have been designed properly.
- ❖ Use ideal seam construction.

2.7 Excess Fabric on Stitch



Where are the fabric allowance are excess after sewing.

Recommended Solutions :-

- ❖ Assure the machine is feeding accurately .
- ❖ Use proper sewing technique.
- ❖ Sewing operator must fold fabric with same allowance during sewing.

2.8 Elastic Uneven



Where elastic have uneven stitching allowance.

Recommended Solutions :-

- ❖ Use marking pattern for marking the elastic before stitching.
- ❖ Make sure operator following the stitching mark.

2.9 Fraying



If a piece of cloth frays or is frayed, the fibers in it become loose and start to come apart.

Recommended Solutions :-

- ❖ Use proper adjustment between needle & looper.
- ❖ Stitch should not bent too narrow.
- ❖ Tension on needle not too loose.
- ❖ Operator must handle the fabric properly.
- ❖ Knives should not blunt.
- ❖ Knives correctly set.
- ❖ Right choice of thread for fabric.

2.10 High Low

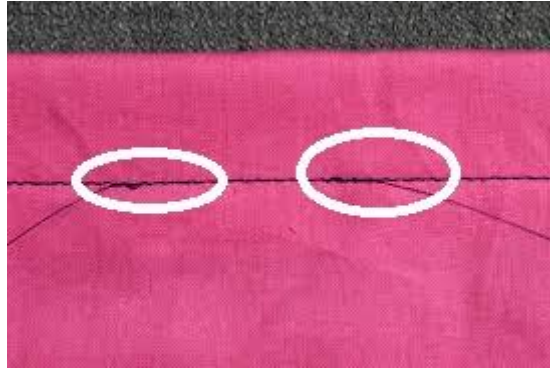


Where the measurement of back pocket to back yoke does not same.

Recommended Solutions :-

- ❖ Marking pattern must be accurate.
- ❖ Use proper marking method.
- ❖ Observe accurate sewing technique during back pocket join.
- ❖ Use minimum pressure during sewing.

2.11 Joint Stitch



When more than one stitch is spliced with one another then create joint stitch.

Recommended Solutions :-

- ❖ Require superior quality sewing thread.
- ❖ Proper sewing machine & machine adjustment.
- ❖ Observe sewing operators for correct material handling technique.

2.12 Needle Cut

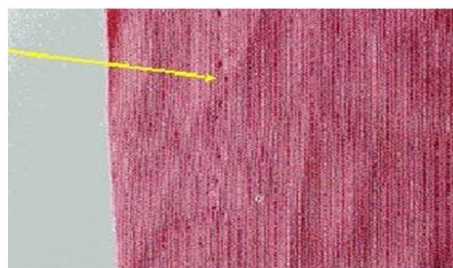


Where needle cut thread during stitching.

Recommended Solutions :-

- ❖ Machine must be clean.
- ❖ Do not use damaged machine.
- ❖ No needle dull, bent or set in correctly.

2.13 Needle Mark



Where needle holes appear along the stitch line.

Recommended Solutions :-

- ❖ No needle dull, bowed or set in correctly.
- ❖ Needle type and thread count must be perfect.
- ❖ Needles have to change at regular intervals on operations.
- ❖ Check fabric manufacturer.

2.14 Oil Mark



Where oil spot appear during sewing fabric.

Recommended Solutions :-

- ❖ Use proper machine & machine adjustment.
- ❖ Avoid damaged machine.

2.15 Over Stitch



Where the stitch line misses appropriate sewing direction and seam run over the fabric.

Recommended Solutions :-

- ❖ Use proper sewing material handling techniques.
- ❖ Make sure the patterns/guide have been designed properly.
- ❖ Must have to follow the guide during sewing.

2.16 Open Stitch

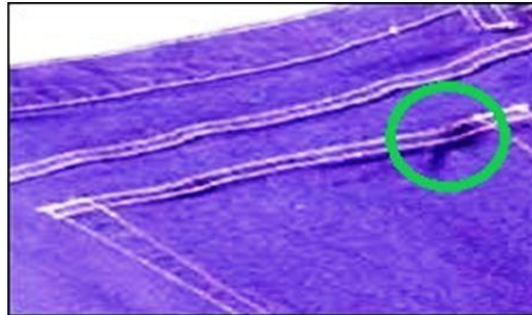


Disengagement of seam and fabric but stitch line is remain unbroken.

Recommended Solutions :-

- ❖ Confirm the patterns have been planned for proper fit.
- ❖ Utilize principle seam assembly.
- ❖ Contact your fabric supplier.

2.17 Pleat



When the fabric does not place plane after stitching.

Recommended Solutions :-

- ❖ Machine must be clean.
- ❖ Use proper tension in bobbin & looper.
- ❖ Needle can't be too small or wrong point.
- ❖ Make appropriate stitch length.
- ❖ No too tight tension.
- ❖ Thread must be moving smoothly.
- ❖ Use minimum pressure during sewing.
- ❖ Stretching of the material is in considerable limit.

2.18 Poor Pressing



Where ironing is not done in proper way.

Recommended Solutions :-

- ❖ Temperature control set properly.
- ❖ Iron should heat completely before pressing.
- ❖ No malfunctioned steam control.

2.19 Puckering

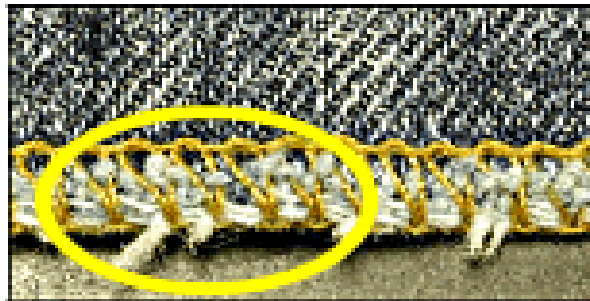
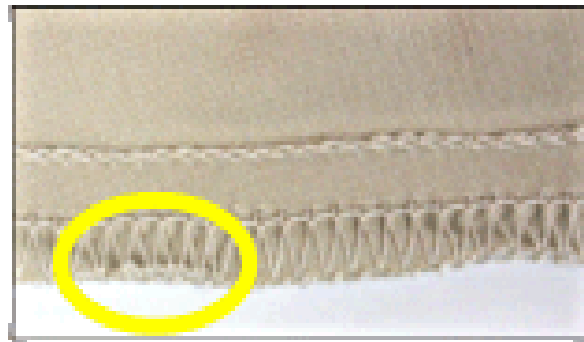


Where the seam does not lay flat and smooth along the stitch line.

Recommended Solutions :-

- ❖ Seam on straight grain/woof.
- ❖ Fabric must held properly.
- ❖ Use minimum thread tension.
- ❖ Needle needs replacing.
- ❖ Use correct thread for needle.
- ❖ Correct thread for bobbin & needle.
- ❖ Ensure minimum pressure on foot.
- ❖ Use right stitch length.
- ❖ Accurate seam class choice for material.
- ❖ Differential feed needs to be reduced.

2.20 Ragged/Inconsistent Edge

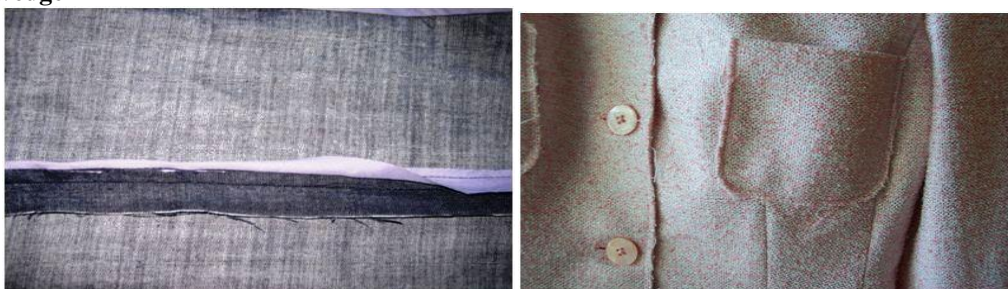


Either the edge turn extremely ragged or rolls inside the stitch.

Recommended Solution :-

- ❖ Make use of sharp knives and changed often.
- ❖ The knives have to adjust appropriately.
- ❖ Loopers must correctly set.
- ❖ Needle to looper relation must be correct.
- ❖ Proper types of thread must be used.
- ❖ Knives should not blunt.
- ❖ Right choice of thread for fabric.

2.21 Rawedge



Raw edge means unfinished, cut edge of fabric.

Recommended Solutions :-

- ❖ Pressure foot must be correct.
- ❖ Pressure foot should not sticks to material.
- ❖ Garments sections have to same length.
- ❖ Garments sections can not cut on different grain.
- ❖ Use feed dog at correct height.
- ❖ Appropriate needle plate.
- ❖ Operator must feed upper layer properly.

2.22 Run of Stitch

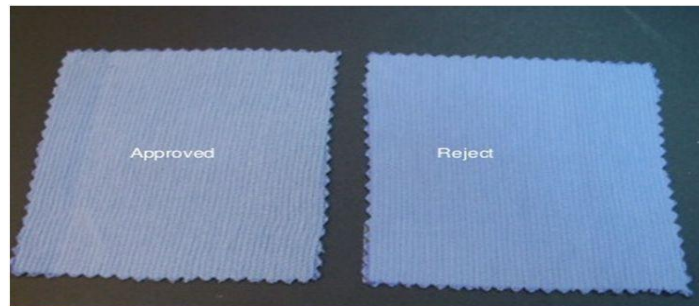


Where stitch is remain continuous unnecessarily.

Recommended Solutions :-

- ❖ Operator should not pulling fabric during sewing.
- ❖ Use accurate sewing procedure.

2.23 Shading



Fabric shade variation is the variation of shade or depth of color in same fabric roll.

Recommended Solutions :-

- ❖ Numbering of each single parts of garments should be accurate.
- ❖ Operator must check the garments number before sewing.

2.24 Sagging on Rolling Pockets



where the pocket rolls over after stitching and does not lay even.

Recommended Solution :-

- ❖ Operators are not holding pocket back excessively.
- ❖ Ensure the body and pocketing is shaped correctly and extra fabric does not put inside during sewing.
- ❖ Pocket need to cut according pattern and not too much deep.
- ❖ Inside of the pocket reinforcement tape can use.

2.25 Shining Mark

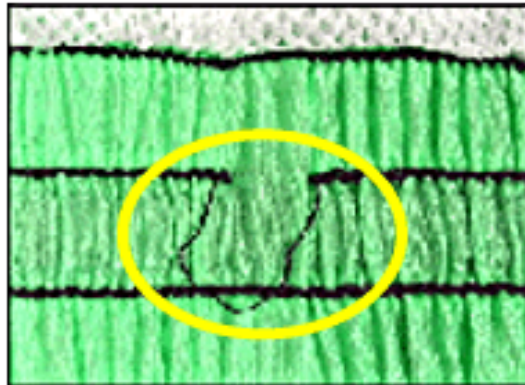


Over heated iron may melt the fiber of the fabric which create shining mark.

Recommended Solutions :-

- ❖ Use proper temperature during iron.
- ❖ Iron must heat completely before use.
- ❖ Steam control should not malfunctioned.
- ❖ If ironing is too heavy, there might be shining mark on garment.

2.26 Skip Stitch



When the needle thread cannot catch the looper thread tends to skip stitch. Most of the time it occurs right before or right after the heavy thickness.

Recommended Solution :-

- ❖ Core spun thread may use.
- ❖ Machine would not feed the fabric in back way.
- ❖ Supervise feeding system.
- ❖ Minimum thread tension.
- ❖ Not to stop on the thick part of fabric.
- ❖ Set ideal foot, feed and plate.
- ❖ Machine should be correctly threaded.
- ❖ Machine must be clean.

- ❖ Needle should make hole properly (Hole not too large or short).
- ❖ Needle not too fine for thread.
- ❖ Machine trimming needs proper adjustment.
- ❖ Fabric must held properly.

2.27 Slanted



A type of defect that is set on an angle on the topside of any garment.

Recommended Solutions :-

- ❖ Pattern must be accurate.
- ❖ Maintain proper marking procedure.
- ❖ Appropriate pressure foot.
- ❖ Observe sewing operators for correct material handling technique.

2.28 SPI



SPI means Stitches Per Inch. This means number of stitches formed in one inch length of seam. Generally buyer mention stitching SPI. Supplier supposed to follow that SPI in garment samples and bulk product.

Standard SPI for different types of machine:-

Single/Multi Needle Lockstitch Machine- 7-10

Blind Stitch Machine- 13-14

Flat Lock Machine- 12-13

Over Lock Machine- 10-13

Button Hole Machine- 56

Chainstitch Machine- 8-10

Zig Zag Machine- 13-15

Coverstitch Machine- 13

Bartack Machine- 56

Feed of the arm (FOA) Machine- 7-9

Eye let hole Machine- 56

2.29 Stitch Breakage

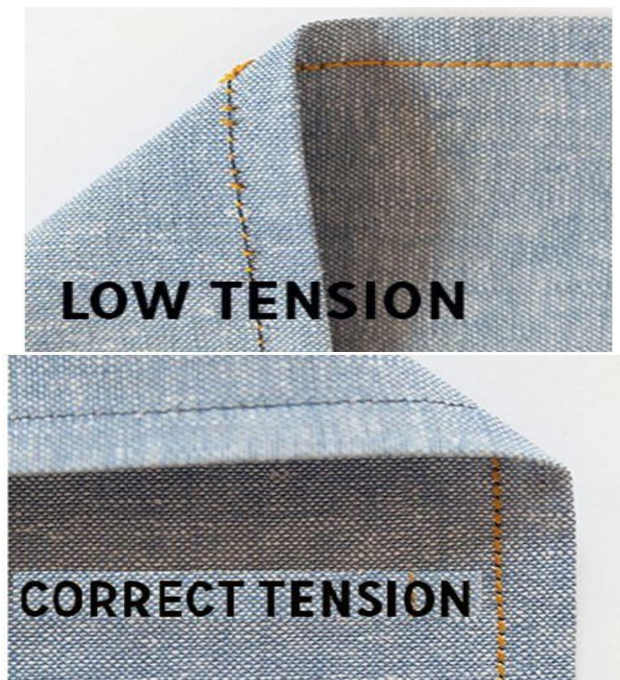


Where inconsistency in seam appearance at bottom side of fabric.

Recommended Solutions :-

- ❖ Use class full thread.
- ❖ Proper size of thread.
- ❖ Tension not too tight.
- ❖ Needle set properly.
- ❖ Machine must be clean.
- ❖ Machine correctly thread.
- ❖ Needle need replacement.
- ❖ No burns in needle eye, throat plate, guides thread spindle.
- ❖ Operator should not pulling fabric during sewing.
- ❖ Proper adjustment of needle & looper.

2.30 Tension Loose / Low



Where the stitch is too loose.

Recommended Solutions :-

- ❖ Same thread on needle & bobbin.
- ❖ Thread placement of tension disc cant slipped out.
- ❖ Thread feeding of cone or spool properly.

- ❖ Machine must be clean.
- ❖ Machine correctly threaded.
- ❖ Needle replacement /set correctly.
- ❖ Use minimum quality of thread (too dry, coarse, fine ect.)
- ❖ Bobbin must correct / properly or evenly wound bobbin.

2.31 Tension Tight / High



Where the stitches are too tight.

Recommended Solutions :-

- ❖ Machine must be clean.
- ❖ Machine correctly threaded.
- ❖ Same thread on needle & bobbin.
- ❖ Thread feeding of cone or spool properly.
- ❖ Needle replacement /set correctly.
- ❖ Thread placement of tension disc must be accurate.
- ❖ Use quality full of thread (too dry, coarse, fine ect.)
- ❖ Bobbin must correct.

2.32 Twisting



Garments may twist in front of the top side and change appearance of the clothing.

Recommended Solution :-

- ❖ Adjustment of front and back appropriately before sewing.

- ❖ Follow knee mark to assure proper alignment.
- ❖ Never trim garment with scissors for ensuring same length.
- ❖ Machine must in tune properly.

2.33 Uneven Shape

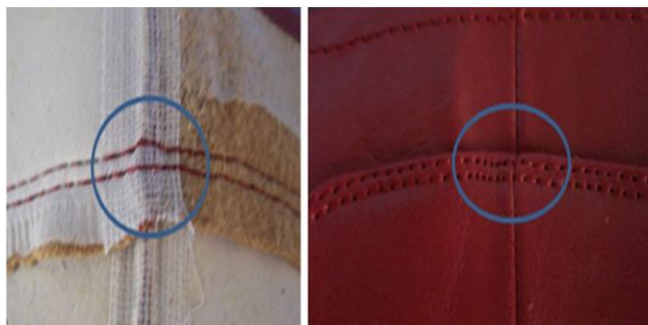


Where the shape of a garment are uneven.

Recommended Solutions :-

- ❖ Folding might be done in proper way to prevent shape.
- ❖ Use minimum pressure in feed dog.
- ❖ Operator should not pulling fabric during sewing.
- ❖ Monitor sewing operators for correct material handling technique.

2.34 Uneven Stitch



Where the stitching line are not even.

Recommended Solutions :-

- ❖ Thread must feed smoothly.
- ❖ Thread correctly threaded between tension discs.
- ❖ Use minimum pressure.
- ❖ No burns or rough spots along the path of thread.
- ❖ Operator surely feeding fabric properly.

2.35 Untrimmed Threads



Although untrimmed threads are generally considered a minor defect, they can become a more serious issue if evident in a significant portion of the order.

Recommended Solutions :-

- ❖ Thread end should too short.
- ❖ Take up lever in its highest position.
- ❖ Thread ends must held at beginning of stitch.

2.36 Unraveling Buttons

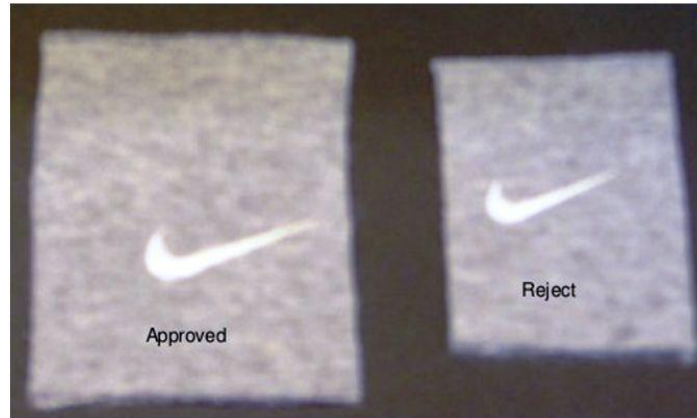


Some excess thread is visible on the top side of the button.

Recommended Solutions :-

- ❖ Use best quality sewing thread.
- ❖ Should use lock stitch machine for attaching button.

2.37 Wrong Size



Where the size of specific parts does not remain same size.

Recommended Solutions :-

- ❖ Marker must be accurate.
- ❖ Every component should be specify by number .
- ❖ Sewing operator have to match number before stitching.

2.38 Yarn Gathering

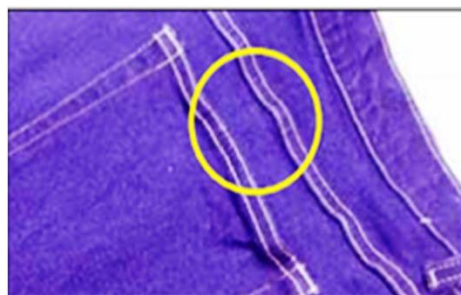


Where gathering of yarn take place during stitching.

Recommended Solutions :-

- ❖ Use minimum stitch length.
- ❖ Thread set into tension discs properly.
- ❖ Bobbin are worked properly.
- ❖ Accurate stitch type.
- ❖ Use minimum pressure during sewing.

2.39 Wavy Seams



There is waviness on seam line.

Recommended Solution :-

- ❖ Operator should not stretch the fabric.
- ❖ Presser foot pressure must be minimum.
- ❖ Stitch length must not be too short.
- ❖ Extra care should be taken when sewing.

2.40 Zipper Wavy



Zipper does not lay flat after sewing.

Recommended Solutions :-

- ❖ Operator should not pulling fabric while stitching or without raising pressure foot.
- ❖ Use minimum pressure foot.
- ❖ Manage operator for proper sewing techniques

III. Conclusion

The identification of sewing defects with images will give clear idea that alter is a major issue in apparel manufacturing. But it must need to decrease the amount of fault by recommending several solution. Otherwise it increases the possibility of shipment failure. Most of the defect occur due to improper maintenances, machine adjustment, improper needle and pressure foot adjustment. So this paper represents number of different defects and its possible way to retain standard of products. With maintaining proper quality it would possible to add value and build a good relation with client. If sewing processes can be improved the ultimate result is to deliver products with better quality.

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