

# Comparative Study on “Handling Defects in Woven and Leather Garment Manufacturing”

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**Abstract:** Garment manufacturing process involves converting the raw materials into the desired garment. The raw materials either fabric or leather comes with various flaws which needs to be tackled before the garment is processed. defects in woven fabrics includes holes, slubs, knots, stains, straeaks, etc. on the other way leather, which is a processed skin comes with various defects such as bone mark, scars, wound marks, wrinkles etc. pre-production process which includes fabric inspection, marker planning, cutting etc is a very important process which requires utmost care for quality garment output. The main focus of the study is to know the types of woven defects and leather defects, and the methods of handling them in the cutting section. Woven defects are man-made defects which are caused mainly during the weaving process; whereas leather defects are naturally occurring defects which may be due to fungal attack infections, scratches, infestations etc. on animals like sheep, cows, pig etc, whose skin is the base for leather garment manufacturing. Our main idea is to make a comparison between the woven and leather defects and the way to encounter the same during the garment manufacturing process.

**Keywords:** Cutting Section, Garment Patterns, Garment manufacturing, leather defects, surface defects, woven defects.

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## I. INTRODUCTION

Garment industries deal mainly with the manufacturing of garments namely woven garments, leather garments, knit garments etc. the processes involved in the manufacturing of woven garments varies from those involved in leather garment manufacturing. The key area of production lies mainly in the pattern making section and cutting section of the industry. The fabric inspection is entirely different from leather inspection. The main idea behind this study is to know those differences and the methods to encounter them during cutting.

## II. OBJECTIVES

- Comparative study of woven and leather defects.
- Methods of handling the woven fabric and leather defects in cutting section.

## III. METHODOLOGY

Research was carried out by us by visiting woven garment manufacturers and leather garment manufacturers. This study is mainly based on the data obtained from the industry, Radhamani Exports-Jigani Garment Plant, B'lore- Woven Garment Manufacturer and Fashion Factory International Pvt.Ltd, N.S.Palya, B'lore- Leather Garment Manufacturer.

Garment manufacturing involves a number of production processes which include pattern making, grading, testing and inspection of raw materials etc. Inspection is an important aspect followed prior to garment manufacturing to avoid rejects

and facing with unexpected loss in manufacturing. Fabric inspection is done for fault or defect rate, fabric construction, end o end shading, color, etc. inspection ensures cut components or garments due to fabric faults. Cutting inspected and approved fabrics ensures finished quality garments and reduces rejects.

The purpose of raw material inspection is to determine the quality and acceptability for garments. As the raw material is received it should be inspected to determine acceptability from quality view point. Raw material inspection is important prior to spreading and cutting.

Raw material inspection syatem vary wovwn garments and leather garments. Fabric inspection systems include 10-point system, 4-point system, Dallas system, Graniteville”78” systems.

Fabric inspections in a woven garment manufacturing industry are done when 80% of the lot is received. All defects must be flagged during inspection; shade continuity within a role should be checked for shade variation ets. After identification of fabric defects a system needs to be followed to grade the defects to ascertain its acceptance or rejection. 4-point fabric inspection system is very commonly used in industries. All types of fabrics whether grey or finished can be graded by this system.

Various types of faults found in woven fabrics include, slubs, knots, coloured flecks, missing picks, missing ends oil and other stains etc. defects in woven fabrics are a result of yarn imperfections, incorrect weaving process or errors in the finishing process.

Apparel manufacturers inspect the fabrics stock upon arrival so that any fabric irregularities are caught early in the production process. Along with the surface defects the fabric is tested for shrinkage, color fastness, shade variation etc. Defects in leather hide are presently identified by manual inspection. The effect of damage caused to the hide of the animal during its lifetime is a major problem for the leather industry. Such damage results in defects in the processed leather in the form of scars, abrasion etc. Areas of hide containing defects are considered unusual. It is necessary to visually inspect a hide to determine the location of non-defective areas which can be used in manufacture. Visual inspection of hide for cutting is manually carried out by skille operator. The assessment is based on the operator skill and experience. The skilled operator attempts to achieve both optimum layout of patterns and avoid defects unsuited for manufacturing of leather garments. Leather as a natural material with its variety of visual appearance – non homogeneous in color, thickness, brightness, wrinkleness etc needs manual inspection by skilled and experienced operators. The surface defects include scars, mite nests, wart, holes pinholes, healed scars, folds, etc. The detection of defects on the surface of natural materials is a difficult task because of the great variety of texture.

Leather garment components are made as templates on thick cardboards which will be used to cut the patterns required for the garment style. Usually leather garment styles especially jackets will have more number of panels as they are cut from the non defective leather area which is very difficult. There is also a lot of variation in the shade as the hide varies in taking up the dye because of varied textures. Cutting of leather patterns is usually done with sharp knives. Cutting is always done around a pattern template. Usually 8-10 sheep skins are required to manufacture a jacket, as no leather is free from defects. A perfect marker plan cannot be prepared for a leather garment unlike woven garments where you can work with an efficient planned marker.

#### GLOSSARY OF COMPARISION OF HANDLING WOVEN AND LEATHER DEFECTS:

TABLE 1

SL.NO	DETAILS	WOVEN FABRIC	LEATHER FABRIC
1.	Type of defects	Due to imperfection in yarns, weaving and finishing process. Eg: Slubs, Knots, barre, streaks, stains, etc.	Naturally occuring defects like bone marks, scars, wound marks, pin holes, warts, wrinkles, folds etc.
2.	Type of inspection	Manual or automated inspection.	Usually manual inspection.
3.	Inspection system	4-poin system, 10-point system, Dallas system, Graniteville “78” system.	Visual inspection.
4.	Testing	Shrinkage test, tear strength, color fastness, pilling, etc.	Azo dyes, chrome, formaldehyde, heavy metals, chlorinated phenols.(chemicals

			used during processing of leather)
5.	Criteria for inspection	Complete bolt/ fabric roll can be rejected or accepted based on the inspection systems.	Visually inspect a hide to determine the location of non defective areas.
6.	Cutting method employed	Marker planning, cutting using straight knife, band knife etc.	No marker plan, cutting is done using sharp blades/ knives.
7.	Garment patterns or componets	Simple and less number of patterns for a garment unit.	Complex and more number of patterns or panels to avoid defective leather.
8.	Wastage	Comparitively less.	More wastage.

#### IV. CONCLUSION

Garment manufacturing is an assembly oriented activity with a great range of raw materials that are converted into the wearable garments. Raw material receiving and its inspection is one of the important stages in garment manufacturing to ensure the right material into the product.

Raw material inspection is the process of checking the fabric for detecting faults, grading of the fabric to the fabric quality level. Visual inspection is carried out and the raw material is graded and seperated as per the requirement.

The defects should be identified in the beginning itself to avoid defective garments. The fabric or leather is a primary raw material for making garments and the costliest item among the items required for garment manufacturing. It has to be inspected prior to bulk cutting.

For inspecting the fabric, the woven garment manufacturers use some kinds of inspection systems like 4-point system, 10-system, etc. the objective of fabric inspection is issueing quality fabric to the cutting section and making quality garments. A defective fabric or defective leather will only produce a defective garment. If a faulty fabric/ leather is used in garment making it will increase the cost of manufacturing due to repair work, component change and even garment rejection. Fabric and leather defects are encountered in their own way by the garment manufacturer to manufacture quality garments or defect free garments.

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