Garment Production

LEVEL-I

Based on March, 2022, Curriculum Version 1



Module Title: - Producing cut panels

Module code: IND GAP1 M04 0322

Nominal duration: 40Hour

Prepared by: Ministry of Labour and Skill

August, 2022

Addis Ababa, Ethiopia

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Acknowledgment

Ministry of Labor and Skills wish to extend thanks and appreciation to the many representatives of TVET instructors and respective industry experts who donated their time and expertise to the development of this Teaching, Training and Learning Materials (TTLM).

Acronym

MRN:-, material requisition note

N/E/W: - Nap-either-way

N/O/W: - Nap-one-way

N/U/D:-Nap-up-and-down

OHS: - Occupational health and safety

PA: - preventive action

PPE: - personal protective equipment

TTLM: - Teaching, Training and Learning Materials

UPS: - Unit production system

YY: - yardage yield

Introduction to the Module

Cutting is one of the most important stage in the garment manufacturing process. Fabrics are cut into garment patterns using one of the cutting aids for making garments from fabrics. In the ready-made garment manufacturing, garment manufacturer mostly does cut-to-pack processes. The cutting process comes next to the fabric sourcing and prior to the stitching garments. During cutting, the material is cut into desired pattern shapes based on their needs.

This module is designed to meet the industry requirement under the Garment Production occupational standard, particularly for the unit of competency: Producing cut panels.

This module covers the units:

- Work station
- Mark & laying
- Cutting
- Labeling and bundling
- Dispatching bundling products
- Complete work

Learning Objective of the Module

- Prepare work station
- Mark & laying
- Perform cutting
- Perform Labeling and bundling
- Dispatch bundling products
- Complete work

Module Instruction

For effective use this modules trainees are expected to follow the following module instruction:

1. Read the information written in each unit
2. Accomplish the Self-checks at the end of each unit
3. Perform Operation Sheets which were provided at the end of units
4. Do the “LAP test” giver at the end of each unit and
5. Read the identified reference book for Examples and exercise

Unit one: work station
This unit is developed to provide you the necessary information regarding the following content coverage and topics: • OHS practices • Setting up work bench This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to: • Appling OHS practices. • Setting up Workstation

1.1. OHS practices

Occupational health and safety (OHS) is a branch of public health aimed at improving workplace health and safety standards. It studies injury and illness trends in the worker population and offers suggestions for mitigating the risks and hazards they encounter on the job. Every occupation has health or safety risks associated with it, and it is every employer's responsibility to ensure that their employees can carry out their work as safely as possible.

a. Personal safety.

Where personal protection is needed, specify the type of equipment that provides adequate and suitable protection:

- **For respiratory protection** specify adequate masks and the filter type
- **For eye protection** specify the type of protective equipment, such as safety glasses, safety goggles, face shield
- **For hand protection** specify the type and material of gloves to be worn when handling the substance or preparation.
- **For skin protection** specify the type and quality of equipment required, such as an apron, boots or full protective suit.

First Aid Measures

Describe the first aid measures, i.e. the actions to be taken immediately in case of overexposure to the chemical. If immediate medical attention is required, it should be specified here.

Subdivide the information according to the different routes of exposure under different subheadings:

- exposure by inhalation
- exposure by skin and eye contact
- Ingestion.

b. Equipment and Material Safety

Consider precautions to ensure safe handling and to advise on technical measures, such as local and general ventilation, measures to prevent aerosol and dust formation, procedures or equipment which are prohibited or recommended, and, if possible, give a brief description of such procedures and/or equipment as electrical grounding of containers for flammable liquids.

Consider also the conditions for safe storage, such as incompatible materials, storage temperature and humidity limit/range, light, inert gas and others. Pay attention to special electrical equipment and prevention of static electricity, and specific design for storage rooms or vessels.

Safety procedures

Workplace safety is a category of management responsibility in places of employment. To ensure the safety and health of workers, managers establish a focus on safety that can include elements such as:

- management leadership and commitment
- employee engagement
- accountability
- ensuring all task are carried out safely and efficiently
- safety programs, policies, and plans
- safety processes, procedures, and practices
- safety goals and objectives
- safety inspections for workplace hazards
- safety program audits
- safety tracking & metrics
- hazard identification and control
- safety committees to promote employee involvement

- safety education and training
- safety communications to maintain a high level of awareness on safety

1.2 Setting up work bench

Cutting is to separate fabric parts as copy of the pattern pieces in the marker plan.

Cutting equipment is cleaned, checked and servicing assessed according to manufacturer instructions.

The following are tools, equipments and machines grouped under cutting

- Dress maker's shear/ hand shear/
- Round knife cutting machine (For mass production)
- Straight knife cutting machine (For mass production)
- Band knife cutting machine (For mass production)

I. Preparation of cutting table

Cutting table is prepared to suit correct lay length. If your table is too short relative to the marked length, the fabric will hang at one end so that it affects your cutting.

II. Setting-up of work station

Workstation, cutting table and seating are set up according to OHS practices and specifications for work.

a. Standard operating safety procedures

- Protection equipment: including personal protective equipment (PPE)
- Protective clothing ex. Work wears
- Before doing work that requires the use of PPE

b. Safe materials handling

- Keep the materials in well manner,
- Use the material as enough as required.

c. Equipment/machine safety

- Every morning the trainees wipe and clean the equipments.

- After work, they have to cover the equipments

d. Personal responsibilities for safety

- Observe all, before, safety precautions related to your work.
- Report unsafe conditions
- Wear protective clothing
- Always inspect equipment and associated attachments for damage before using.

e. Ergonomic arrangement of work place

Ergonomic is a science which is used for arrange the work place.

Self-check-1

Test-I choice

Instruction: select the correct answer for the following question. You have given 1 Minute for each question. Each question carries 2 Points.

1. Which one of personal protective equipment (PPE) used to for respiratory protection.
   A. Safety glasses
   B. Apron
   C. Mask
   D. Gloves
2. Which one of personal protective equipment (PPE) used to hand protection.
   A. Gloves
   B. Apron
   C. Boots
   D. Mask
3. From the following parameter which one to help choose and use the most appropriate cutting tools
   A. Uniform width & angle of the cutting tools
   B. Tempered or stainless-steel blades
   C. Adjustable screw securing the blades
   D. All
4. Which of tool used to produce a notched cutting line (zigzag) gives a neat appearance to the inside of garments.
   A. Scissors
   B. Straight knife
   C. Round knife
   D. Notchers
5. Which of a straight, vertical blade with varying edge an electric motor, & a sharpening device.
   A. Scissors
   B. Straight knife
   C. Round knife

D. Notchers

Test II: short Answer writing

Instruction: write short answer for the given question. You are provided 3 minute for each question and each has 3 points.

1. List safety procedures.
2. List some of the safety precaution concerning people
3. What are some of the Personal responsibilities for safety on work place
4. List some of the Safety precautions concerning facilities
5. what is ergonomics
6. List some of the Standard operating safety procedures

Note: Satisfactory rating – above 60% Unsatisfactory - below 60%

You can ask you teacher for the copy of the correct answers

Operation sheet 1.1

Operation title:

Instruction:

Purpose:

Equipment, Tools and Materials

Steps

QUALITY CRITERIA:

PRECAUTIONS:

Lap Test-1

Unit Two: Mark & Laying

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Tools and equipment for marker and laying
- Collecting and checking pattern pieces
- Performing marker making
- Preparing layup instruction
- Checking marker making requirement
- Performing spreading /laying

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Prepare of making markers
- Select tools and equipment for marker and laying
- Collect and check pattern pieces
- Perform marker making
- Prepare layup instruction
- Check marker making requirement
- Perform Spreading /Laying

2.1 Tools and equipment for marker and laying

In apparel manufacturing, a marker is a special kind of stencil that illustrates how pattern pieces of one or more garments should be cut from several layers of fabric. The person who arranges the marker is the marker planner.

2.1.1 Lay-up and marking equipment

Lay-up and marking equipment is set up and prepared for use. The following are lay-up and marking equipments that should be set-up and prepare before lay-up and marking is commenced.

- **Fabric weights** – Cloth weights made of metal about 2–10 lb. can be used to hold the marker down on the lay.



Fig 2.1.1 Fabric weights

- **Clamps** used in different tailoring houses for holding the fabric or the clothing to make incisions saving both time and money



Fig 2.1.2 clamps

- **Tailor's chalk**



Fig 2. 1.3 Tailor chalk

- **Preparation of cutting table**

Cutting table is prepared to suit correct lay length. If your table is too short relative to the marked length, the fabric will hang at one end so that it affects your cutting. Your cutting table should have the following specifications:

- ✓ Min. width =180cm
- ✓ Length =300cm
- ✓ Height= 75-95 cm
- ✓ Metal legs and Smooth surface

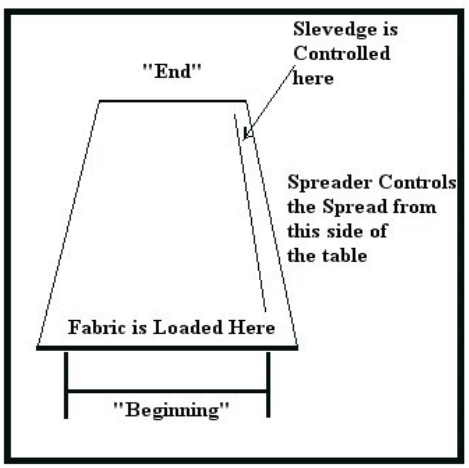


Fig. 2. 1.4 Cutting Table

- **Fabric may include:**
  - ✓ woven fabrics such as:
    - ➢ plain and its derivative
    - ➢ twill/ its derivative
    - ➢ sateen/ its derivative
    - ➢ satin/ its derivative
  - ✓ knitted fabrics such as:
    - ➢ single jersey
    - ➢ double jersey
    - ➢ interlock
    - ➢ purl
  - ✓ designs such as:
    - ➢ stripes
    - ➢ one-way designs
    - ➢ plaids

Requirement of the cutting process

1. **Precision cut**

Garments cannot be assembled satisfactorily, and they may not fit the body correctly, if they have not been cut accurately to the pattern shape. In manual cutting using a knife, accuracy of cut, given good line definition depends on appropriate, well-maintained cutting knives and on the skill and motivation of the cutter.

2. **Clean edges**

The raw edge of the fabric should not show fraying or snagging. Such defects come from an imperfectly sharpened knife.

3. **Un-scorched and un-fused edges**

The build-up of heat in the knife blade comes from the friction of the blade passing through the fabric. This, in extreme cases, leads to scorching of the fabric and, more frequently, to the fusing of the raw edges of thermoplastic fibre fabrics, such as those containing polyamide or polyester. Support of the lay

The cutting system must provide the means not only to support the fabric but also to allow the blade to penetrate the lowest ply of a spread and sever all the fibres.

4. **Consisting cut parts**

The cutting system should not be limited in the height of plies it will cut, because of progressive deterioration in cutting quality, though there may be mechanical or human reasons, such as toppling or leaning, for the height of lay being limited.

Lay-up of fabric

Laying out of fabric means to place the number of layers of fabric that the production planning process has dictated, to the length of the marker plan, in the colors required, correctly aligned as to length and width and; without tension.

The following points should be exercised before laying out the fabric.

- ✓ Fabric is collected and checked.
- ✓ Fabric width and quality are checked with lay-up instructions.
- ✓ Fabric is laid up and fabric tension adjusted to match fabric performance.
- ✓ Fabric is checked for faults and required action taken to cut out faults or other appropriate techniques.

Fabrics also come in various widths. They can be purchased on textile stores. You will purchase and prepare a fabric that fits the job requirement/ specifications of your client. Here is a table showing the different widths of fabrics.

Table 2. 1.1

Inches	Centi mater
35” – 36”	90 cm
39”	100 cm
44” 45”	115 cm
48”	122 cm
50”	127 cm
54” – 56”	140 cm
68” – 70”	175 cm
72 ‘’	180 cm

2.1.2 Cutting equipment

In the majority of cutting rooms, the cutting process makes use of hand shears, a mechanized knife blade in one of the several possible types, or a die press which stamps out the garment shape. Some of the methods currently in use are described below.

1. **Hand shear/ Dressmaker’s shear**

- Use this, only for cutting out fabric! Particularly when you want to cut garment parts individually from the marked fabric.
- Method is flexible, Time consuming, and High labor cost per garment.



Fig. 2. 1.5 Dressmaker’s shear

2. Straight knife cutting machine

- Most popular, versatile and economic
- It is used for cutting a number of layers of fabric
- It's parts are:
  1) A base plate: usually on rollers for ease of movement,
  2) Un upright or standard carrying straight,
  3) Vertical blade: with varying edge characteristics,
  4) An electric motor,
  5) Machine holder,
  6) A handle for the cutter to direct the blade; &
  7) A sharpening device

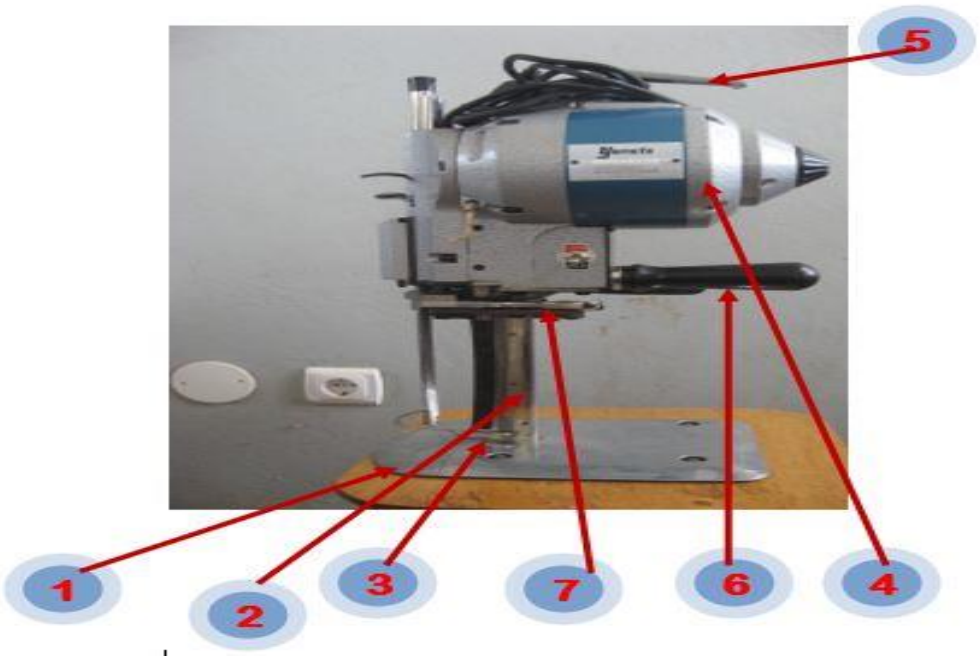




Fig. 4. 1.6 Straight knife

- Normally vary 10 cm to 33 cm and the stroke vary from 2.5c.m to 4.5 cm
- The greater the blade movement, the faster the blade cuts the fabric and more rapidly and easily the operator can push the machine.

3. Round knife cutting machine

- It is very simple with a round blade of about 10 cm diameter with a direct motor connection and a handle to manipulate the tool.
- Is a cheap and moderate in efficiency
- Used normally by very small entrepreneurs
- It's parts are:
    1) A base plate: usually on rollers for ease of movement,
    2) Round blade of 10 cm diameter
    3) An electric motor,
    4) A handle for the cutter to direct the blade; &
    5) A sharpening/ grinding stone

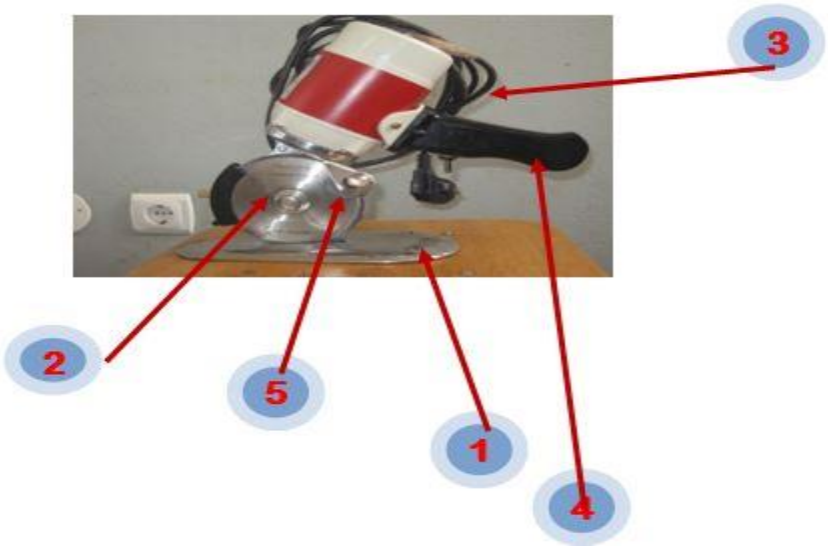


Fig. 4. 1.7 Round knives

4. Band knife cutting machine

- This machine comprises a long saw teeth blade passing around the head of the machine and table of the machine.
- It has a table for keeping the fabric lays.
- The table has a base with air floatation for ease movement of the fabric lays.
- It is more efficient than the straight knife cutting machine if the bulk of the lay is larger and also cutting parts are small and need accuracy of cutting.
- In using this machine, the material moves and the machine is stationary.

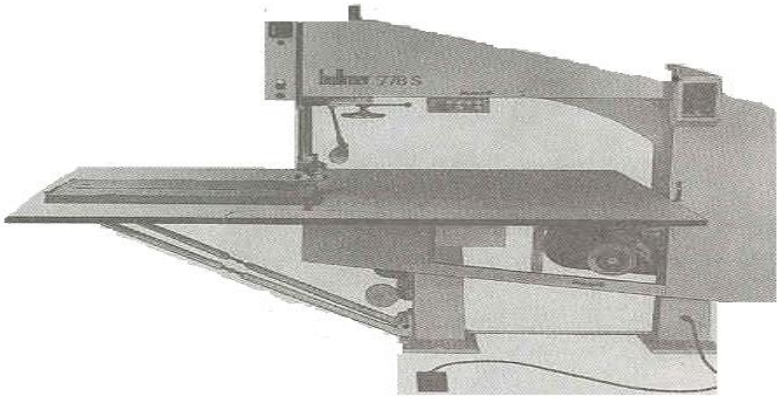


Fig. 4. 1.8 Band knife

- One edge of the blade is sharpened,

- The blade is usually narrower than a straight knife which assists in the cutting of tight curves.
- Used more in men's wear than in women's wear,
- Used to cut small garment parts such as flaps, pockets, collar, band etc with greater precision.

5. Fabric drill

- Used to make a hole through all the plies of the fabric lays.
- We use drill where reference marks are needed away from edges of a garment, such as:
    1) For position of pocket,
    2) End point of dart,
    3) Button hole and button setting position
    - It has the following parts:
        1) A base plate that has NO roller under it.
        2) Water level on the front side of base plate
        3) An electric motor,
        4) A handle for the machine to direct the spindle; &
        5) A spindle/ pin

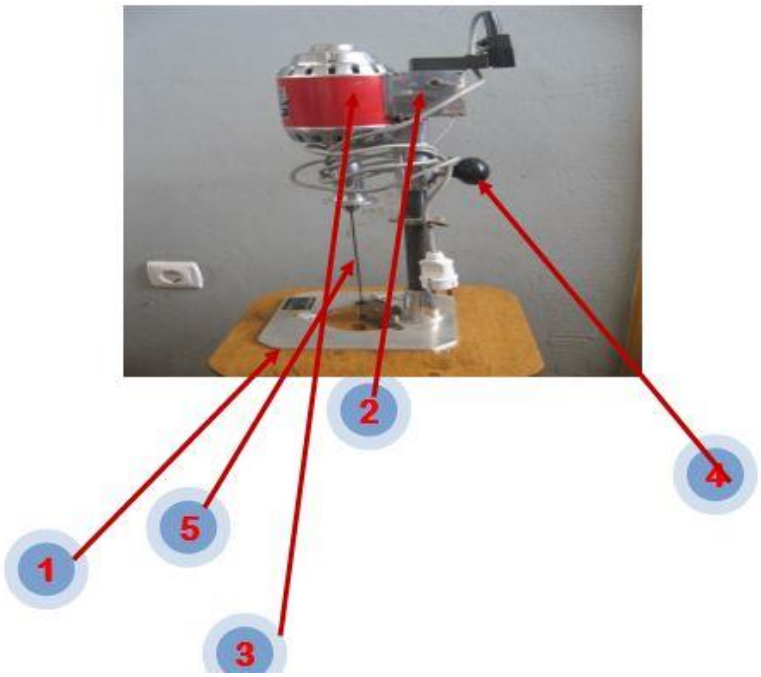


Fig. 2. 1.9 Fabric drill

6. Notcher (pattern paper notcher and fabric notcher)

6.1 pattern paper notcher

- Many of garment parts need notches (a small V/ U cut) as guiding marks
- It is a small cutting tool and used to make a notch on pattern paper.
- Generally, used to make a notch, on the pattern, that shows:

1) the seam and hem allowance
2) legs of darts and tucks
3) fitting of long seams or alignment of garment parts like sleeve & bodice
4) centre mark
5) front & back side of sleeve (i.e. 1- notch shows front side & 2- notches show back side)
6) starting point of collar
7) Vent width
8) End point of zipper during placement etc.



Figure 2. 1.10 Pattern paper notcher

6.2 Fabric notcher

- Provides greater accuracy
- Give consistent depth of notch at a right angle to the edge.
- Both Straight notches and V notches are available.
- Hot Notchers, prevents fraying of the fibers. This cannot be used with thermoplastic fibers.

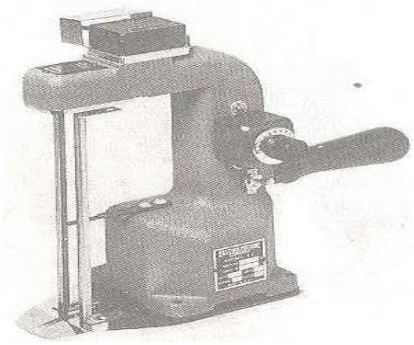


Fig. 2. 1.11 Fabric Notcher

7. Die cutting

- The die is a knife in the shape of a pattern periphery, including notches.
- It operates use of the metallic blade die in the form of patterns, welded on to a board.
- This die is mounted on the computerized cutting head of the machine which punches on the fabric lays that are fed to it and delivers the cut parts.
- Most of the operations are computer controlled and does NOT need interference.
- Small parts of larger garments such as pockets or the parts of smaller garments such as bras can also cut.
- High accuracy in cutting
- only appropriate for large quantities of the same pattern
- Disadvantage of die cutting is its greater use of fabric.

8. Computer controlled cutting machine

- Use the computer pattern making software & the system connected to cutting device.
- This method provides the most accurate possible cutting, at high speed & to keep the large systems fully occupied.
- They are frequently used in a central cutting facility that supply a number of separate sewing factories.

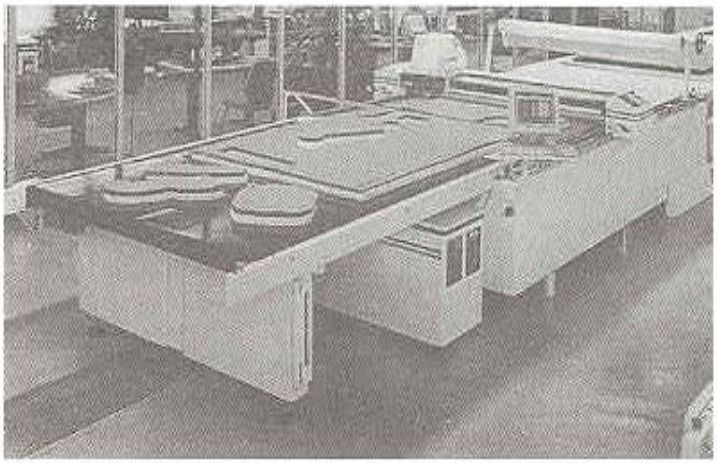


Fig. 2. 1.12 Computer controlled cutting machine

9. Laser cutting machine

It uses the principle of laser that produces a beam of light which can be focused in to a very small spot (0.25 mm) producing a very energy density.

10. Plasma cutting machine

It was originally developed to satisfy a demand for high quality cutting on stainless steel and aluminum but it can cut also be used to cut textile materials.

11. Water jet cutting machine

The principle here is a very high velocity small diameter stream of water is created by applying high pressure water to a nozzle.

12. Ultrasound cutting machine

The principle here is the use of an ultrasonically driven knife blade. It is a mist recently developed.

2.2 Collecting and checking pattern pieces

Pattern Manipulation: The process in which to change and reshape pattern blocks to adjust the fit or incorporate a new design. Basic Pattern Set: A 5-piece set of flat patterning blocks consisting of a front and back bodice, a long sleeve, and a front and back skirt block.

Pattern Manipulation is make either slash and spread/close or pivot a pattern piece to alter it from its original shape. Often times, a well-fitting simple sloper are used when applying either of these techniques.

The main few options of manipulating darts in the Skirt are:

1. Closing the waist darts (or part of the waist darts, or one of the waist darts) and opening up the hemline; this creates flare in the skirt.
2. moving the waist dart into the side seam
3. Moving the waist darts into the Yoke Style line.

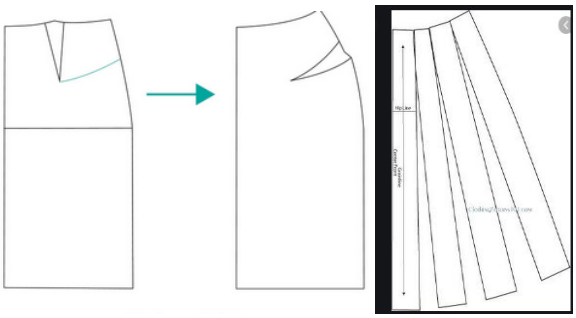


Fig 2.2.1 skirt of dart manipulation

The main few options of manipulating darts in the bodies are

1. Mark new dart position and cut along this line.
2. Pivot the release (gray) section to close the original bust dart position.

3. Shorten dart apex.

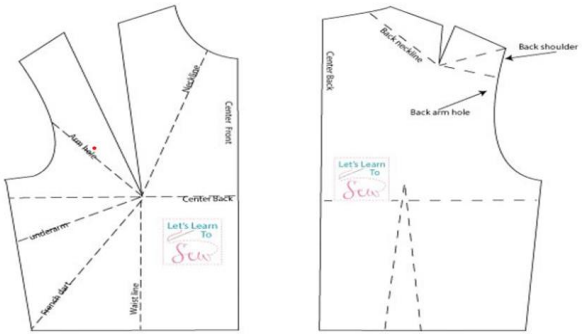


Fig. 2.2.2 manipulation of bodies

Pattern grain

Grain is the direction of the yarns in a fabric. Grain is very important when constructing garments since it determines how a garment will hang, fit and appear on it. Grain lines are a generally unnoticed aspect of the garment that is until they are either used in the wrong way and cause a fit problem or used in interesting ways to fit the fabric to the body.

Importance of Grain in fabric

All fabrics made from yarns are Again after knitting and weaving. Looms and knitting machines construct fabrics in a grain perfect manner. A fabric can become off-grain during the processes of finishing (dyeing, printing, permanent finishing, and/or packaging, winding onto a bolt). Garments that are not cut and sewn according to the fabric grain can stretch in places they should not, have sagging hems and be uncomfortable tower.

Lengthwise

Lengthwise grain is commonly referred to as “grain” or “straight grain” on commercial patterns. It’s marked by an arrow on the pattern piece, indicating the direction in which the pattern should be placed on the fabric. Lengthwise grain lies parallel to the selvages and has little or no stretch. Therefore, in most garments, lengthwise grain runs perpendicular to the ground

Selvedge The selvedge is the band of more tightly woven fabric that runs up either side of the fabric meter age.

Crosswise

Crosswise grain, also called “cross-grain,” is made from the yarns woven over and under the lengthwise yarns at a 90-degree angle. Crosswise grain has more stretch than lengthwise grain, thanks to the over/under weaving, which naturally provides less tension. In most garments, crosswise grain runs around the body, parallel to the floor.

Bias

Bias-not technically a grain, refers to any line diagonal to the lengthwise and crosswise grains. “True bias” is a cut made on an angle 45 degrees to the selvage. It has the most stretch and gives fabric a flowing drape over the body. Because of the inherent elasticity of bias, it requires special care in cutting and sewing to utilize the stretch without distorting the fabric

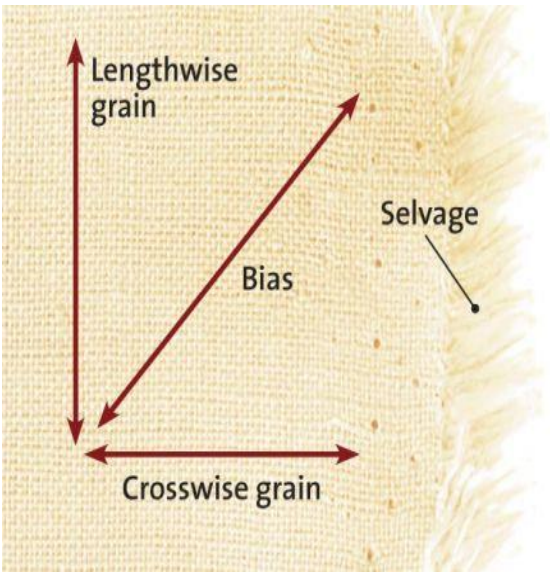


Fig.2.2.3 Fabric Grain

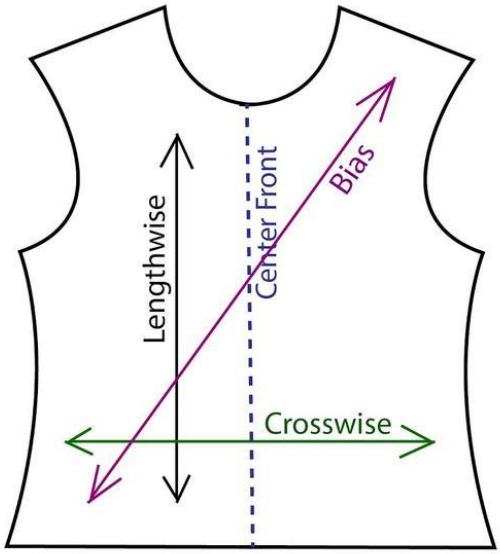


Fig.2.2.4 Pattern Grain

2.3 Performing marker making

We know that, marker is a thin paper which contains all the size of pattern pieces for a specific style of apparels. It gives guidance for actual fabric cutting. Marker making is an important part of garments manufacturing process. After finalization of marker planning, marker drawing is

done. It should be drawn on white paper, because using the marker; patterns are cut from fabric lays.

Marker is attached on the fabric lay with the help of pins and sometimes adhesives are there under the marker and in that case the marker is attached lightly with the fabric by ironing. The marker acts as a guide for fabric cutting. Generally production patterns are placed on the marker and marking around it with the help of fine pencil or other thing, the image of that pattern is made skillfully on that marker. In the case where the marker is made directly on the fabric, in different way such as color spraying, the image of the pattern is given on the fabric. With the cutting of fabric lay, marker is also cut, as a result in most of the times, it becomes necessary to make and use multiple copies of a marker.

The methods of marker drawing and copying: This method is much used method of marker drawing of both old and modern times. The pattern piece is placed on the paper as per the marker planning. Then with the help of fine pencil or ball pen, marking around the pattern the exact image of the pattern is made on the paper. Then removing the pattern from the paper the size code is written on that image of the pattern.

Drawing Marker on Paper Carbon duplicating: In this method, 6 to 8 markers can be duplicated at a time. Both sided carbon papers are placed in between each two marker papers. When marking of patterns is done on the upper page by pens or pencils, duplicate markers are thus achieved.

Advantages: Cost and time effective in case of lower number of copies like 3 to 4.

Disadvantages:

1. Labor intensive
2. Time consuming as it takes long time.



Fig.2.3.1 Drawing marker

Drawing of marker directly on fabric was introduced in . Especially for check fabrics the system was used widely. As per the marker planning placing the pattern on the fabrics they are pressed with the netted frame so that the patterns are pasted finely with the fabric and cannot move. Then with the help of machine from the spray head colors are sprayed on the whole marker by pointer. As a result when the patterns are removed from the fabrics then that places remain vacant this means they remain without color.

2.4 Preparing layup instruction

Laying out the pattern on the fabric to prepare for cutting is an important step that must be done carefully and accurately for great-looking results.

A well-sewn garment starts at the cutting table. Laying out the pattern on the fabric to prepare for cutting is an important step that must be done carefully and accurately for great-looking results. Here are some tips on layout and some ideas on pinning or using weights to anchor the pattern pieces in place.

2.4.1 Pattern preliminaries

Be sure have all the necessary pattern pieces. Most instruction sheets list pieces by letter or number next to the layout diagrams. Make any changes or fitting alterations to the pattern. If it significantly alters a garment's length, it may need extra yardage to make sure that have a workable layout. Press the pattern pieces with a dry iron set to a low-temperature so that they're easier to work with.

Preshrink the fabric if necessary, and make sure the grain is straight. Do this by tearing across the grain at the ends of the fabric piece (if it's firmly woven). Alternatively, pull a thread across the width of the fabric at the ends, or cutting along a dominant line in the pattern or weave. Fold lengthwise, matching selvages, to see whether the ends now match. If they don't and the fabric needs to be straightened, gently pull on the fabric's length from opposite corners. In preparation for cutting, fabric is usually folded. The instruction sheet gives alternatives for folding that are determined by the fabric's width, the garment's size, and the size of the pattern pieces.

With-nap layout, lengthwise fold

A with-nap layout has all pattern pieces placed in the same direction, so any designs or nap on the fabric will be consistently positioned on the garment.

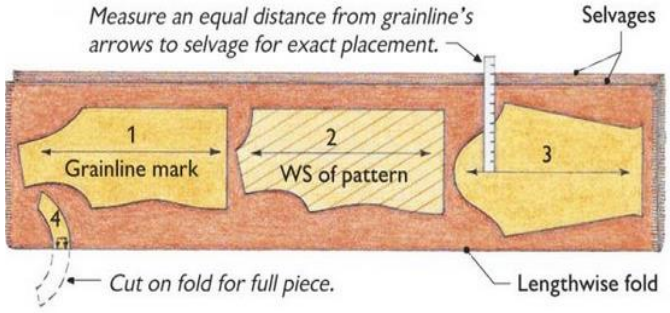


Fig.2.4.1.1 With-nap layout, lengthwise fold

Without-nap layout, crosswise fold

In a without-nap layout, place the pattern pieces in opposing directions.

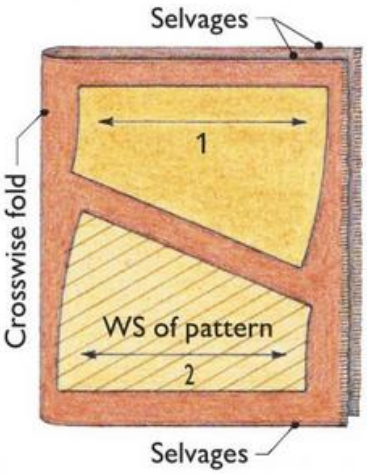


Fig. 2.4.1.2 with out- nap crosswise fold

Lengthwise double fold

Use this layout when cutting two pieces that fit side by side on the fabric, but need to be placed on the fold for cutting.

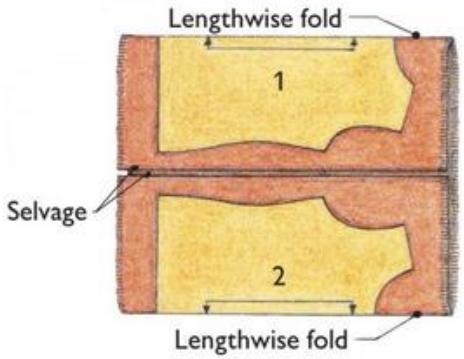


Fig. 2.4.1.3 length wise double fold

Lay-Up of Fabric

Laying out of fabric means to place the number of layers of fabric that the production planning process has dictated, to the length of the marker plan, in the colors required, correctly aligned as to length and width and; without tension.

The following points should be exercised before laying out the fabric:

- Lay-up instructions should be interpreted.
- Fabric is collected and checked.
- Fabric width and quality are checked with lay-up instructions.
- Fabric is laid up and fabric tension adjusted to match fabric performance.
- Fabric is checked for faults and required action taken to cut out faults or other appropriate techniques.

2.5 Checking Marker Making Requirement

To prepare an efficient marker, the width of the fabric to be spread in a lay as well as the number of pattern pieces to be included in the marker plan for all the required sizes should be known prior to it. Marker width that is less than fabric width leads to more fabric wastage while

marker width that is wider than fabric results in incomplete cut components. The individual marker has to be prepared for linings and interfacing materials.

For industrial garments preparation, marker making is important for highest usage fabric and for lowest wastage of fabric. This is a process which is performed to draw the pattern pieces on the fabric before cutting. This may be done by drawing the pattern pieces on the fabric directly or by drawing the pattern pieces on the pattern pieces on the thin marker paper and then placement the paper onto the fabric lay. So, define the marker as below

Marker is thin paper which contains all necessary pattern pieces for all sizes for a particular style of garments in such a way fabric wastage would be least.

Before marker making some preparatory process would be followed.

- **Marker grain line** : before marker making the grain line of pattern and fabric must be marked
- **Fabric measurement**: before marker planning the fabric must be measured carefully because marker width is relevant to the minimum fabric width.
- **Fabric faults**: fabric faults would be also under consideration. In fabric roll where any faults found, that points must be avoided for quality production and to least the fabric wastage.
- **Cutting table**: marker planner should consider the cutting table length befor making marker. Marker length must be less than the cutting table length.

2.6 Performing spreading /laying

Spreading means the smooth laying out of the fabric in superimposed layers of specified length and after spreading the shape of fabric plies is called fabric lay. Various types of fabric lay are used in spreading. During spreading the number of plies should not be more than three hundred.

Types of Fabric Lay:

A. According to construction:

Straight lay

in straight lay each ply of fabric is spread according to marker length, i.e. all plies can have the same length. In that case one marker is used.

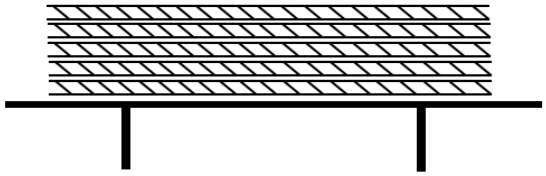


Fig:2.6.1 Straight lay of fabric

Stepped lay

Ply of fabric lay is not spread according to marker length, i.e. when the plies are laid up in different lengths- a step can be formed. Different types of marker are essential for different steps. Its use is very much less because of fabric wastage's and lay making if difficult as well.

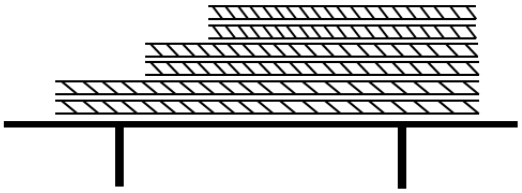


Fig: 2.6.2 Stepped lay

B. According to the direction of spreading

1. One way spreading (Face to underside):

This method is used for open fabrics. The face can lie towards the top or bottom, but always in the same direction. If spreading machines are used, one-way laying-up necessitates idle motion because the machine always begins its run at the same end of the table and must return to this position after every laying operation.

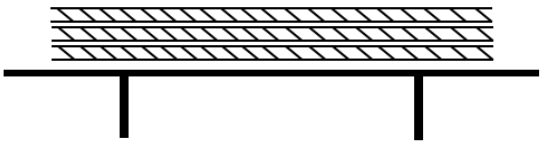


Fig: 2.6.3 One way spreading

2. Laying-up in pairs (Face to face):

This method is also used for open piece goods. The face side is always laid onto the previously spread face side so that- as in one way spreading- the machine returns running idle to the

working position. The roll of fabric must be turned before the next piece is laid-up. When using spreading machines, these consequently require a device to turn the roll after the fabric has been cut off at the end.

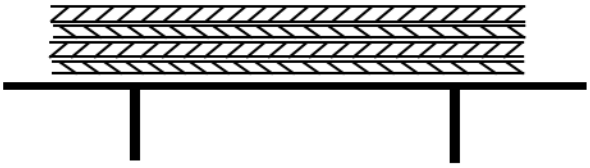


Fig: 2.6.4 Laying-up in pairs

3. Lap (Continuous, Zigzag) lying:

This method was also developed mainly for spreading open piece goods. Contrary to one way spreading and laying-up in pairs, the pieces are not cut off at the lay end but are clamped and then continuously laid in laps. This is the easiest and most popular way of spreading.

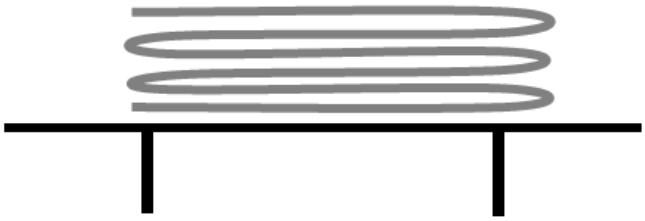


Fig: 2.6.5 Lap (Continuous, Zigzag) lying

Two other symbols illustrated the laying up of folded and tubular piece goods.



Fig: 2.6.6 Folded and tubular piece goods

Adjust fabric tension

"Relaxing" refers to the process that allows the material to relax and contract prior to being manufactured. This step is necessary because the material is continually under tension throughout the various stages of the textile manufacturing process, including weaving, dyeing, and other finishing processes. The relaxing process allows fabrics to shrink so that further shrinkage during customer use is minimized.

Garment manufacturers perform the relaxing process either manually or mechanically. Manual fabric relaxing typically entails loading the bolt of fabric on a spinner and manually feeding the material through a piece of equipment that relieves tension in the fabric as it is pulled through. Mechanical fabric relaxing performs this same process in an automated manner.



Self-check-2

Test I: short Answer writing

Instruction: write short answer for the given question. You are provided 4 minutes for each question.

1. Define Straight Grain line? (1 pt)
2. Wright the advantage of grin line? (3pts)
3. Write the difference between straight grain, cross wise grain & bias grain. (10pts)
4. What is selvage? (1pts)
5. What does mean Pattern Manipulation? (5 points)
6. Write the methods of marker drawing and copying (3 points)
7. Describe types of Lay-up (5 pts.)
8. Write the difference between with nap layout & without nap lay out (5 pots)
9. Write the difference between crosswise fold & Lengthwise double fold (5pts)
10. What is marker? (2pts)
11. What do you follow before marker making?(4pts)
12. What is the importance marker making for industrial garment preparation?(3pts)
13. Define Fabric spreading (2 points)
14. Describe types of fabric lay according to construction and according direction of spreading (8pts)
15. Write about relaxation (4 pts.)

Note: Satisfactory rating – above 60% Unsatisfactory - below 60%

You can ask you teacher for the copy of the correct answers

Operation sheet-2

Lap Test-2

Unit Three: Perform Cutting

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Interpreting cut order planning
- Inspecting and verifying Cut panels
- Reporting damaged or torn cut panels to supervisor
- Taking preventative action to avoid any recurrence of defective pieces.
- Follow up OHS practice

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Interpret cut order planning
- Inspect and verifying Cut panels
- Report damaged or torn cut panels to supervisor
- Documentation completed work
- Take preventative action to avoid any recurrence of defective pieces.
- Check performance of cutting equipments
- Follow up OHS practice

3.1 Interpreting Cut Order Planning

Before marking, the following points should be done:

- Cutting order is interpreted for marking requirements such as fabric type, width, and quantity and garment sizes.
- Required pattern pieces are collected and checked manually or by computer.
- Pattern pieces are manipulated and positioned manually on paper or by computer for most efficient fabric use.

Then,

- ✓ Lay marker is drawn up manually or by computer.
- ✓ Lay-up instructions are prepared according to requirements.

Lay-up instructions are set of instructions that consist:

- Type of fabric that will be laid,
- number of layers that should be laid,
- the color of the fabric that should be laid,
- the length and minimum width of fabric that should be laid.

Marker modes:

Marker mode is the manner the pattern pieces are placed. The marker mode is determined by the form of the fabric whether it is symmetrical (side-to-side) and/or directional (end-to-end).

• Symmetric fabrics are the same side-to side, while asymmetric fabrics, such as border prints, are different from side to side.

• Non-directional fabrics are the same end-to-end, while directional fabrics are different from end to end.

There are 3 types of marker modes:

- Nap-either-way (N/E/W)
- Nap-one-way (N/O/W)
- Nap-up-and-down (N/U/D)

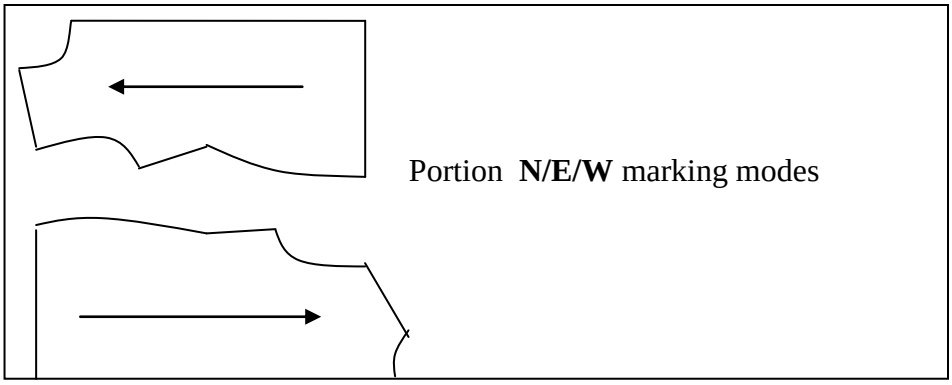
✓ Nap is used to indicate if the fabric is directional.

✓ N/O/W is used for asymmetric and directional fabrics.

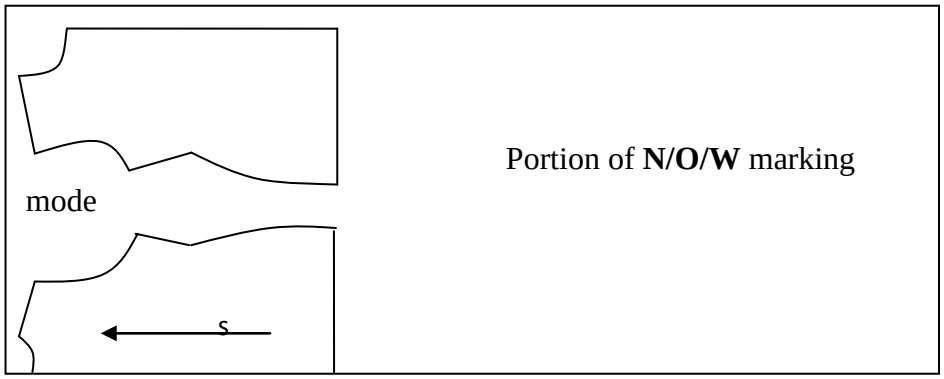
✓ YY is the abbreviation for yardage yield which means marker length

Marker efficiency means total area of patterns divided by total area of marker.

a) **N/E/W** marker has its pattern pieces in any direction as long as it is according to the grain line. Pieces are placed for best fabric utilization. This is only suitable for symmetric, non directional fabrics.



b) **N/O/W** marker has its pattern pieces in only one direction, and is suitable for asymmetrical and directional fabrics.



c) **N/U/D** marker has pattern pieces of one size in one direction and another size placed in the opposite direction. Generally N/U/D will yield a better utilization of fabric

3.2 Inspecting and verifying Cut panels

Fabric inspection ensures to minimize the rejection of cut panels or rejected garments due to fabric faults. Cutting inspected and approved fabric ensures not only finished garment quality but also reduces rejects, improves efficiency and timely deliveries.

3.2.1 Cut Part Inspection:-

Cut parts inspection is either done on a cutting table (after cutting) or during sewing. If cut parts are inspected on a cutting table then generally it is done after sticker /ticketing and 100% inspection is done of which only 5-10% of the cut parts may have fabric defect.

Fabric comprises more than 60% of the garment cost, and notably fabric defects are one of the major reasons for rejection or alteration of a garment. Fabric inspection is done in stores before it is issued to the cutting department; sometimes it is also done during spreading or at times the cut parts are also inspected. Some companies do 100% inspection, while others do random inspection, even though 100% inspection does not necessarily guarantee a defect-free product. Fabric inspection can be done in different ways and at different stages; in some companies it is done at fabric store, in some at the cutting table while in others it is done after cutting.



Fig. 3.2.2.1 inspect cut work

3.2.2 Fabric inspection at store

Fabric lot is received in the factories either in roll or metre fold form. The equipment or machinery used for inspecting the fabrics is a slanted table with lighting from top and bottom, having motorized or manual roll unwinding/winding, edge alignment and metreage checking.

Once the defects are identified, the inspector pastes small stickers near the defect or flags the Selvedge of the fabric perpendicular to the location of the defect

If one tries to cut and remove all defects at fabric stage then the one long fabric roll will be converted into several cut pieces of fabric, which will be difficult to spread and time consuming to cut. Also we need to remember some of the defects that fall into the dead area of marker, so the cutting and removing defects at fabric stage is not necessary

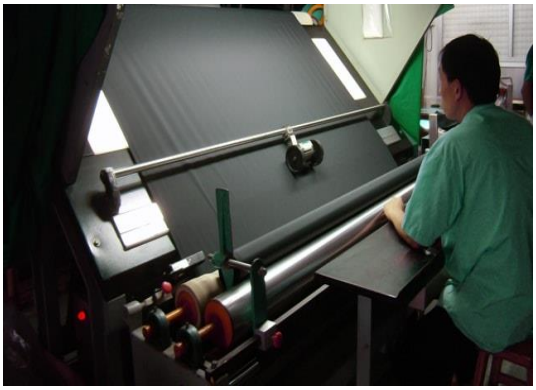


Fig.3.2.2.2 Fabric inspection machine

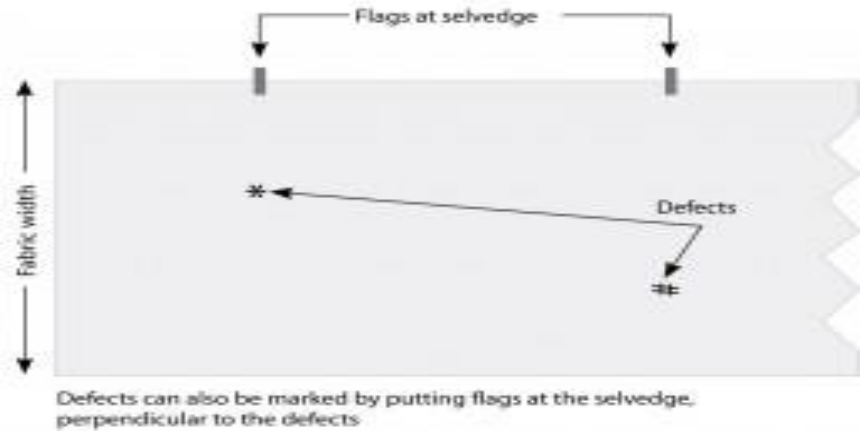


Fig.3.2.2.3 putting flags on defect part

3.2.3 Faults happen in cutting operation are

1. Miss cut
2. Running shade
3. Matching plies
4. Number &bundling
11. Leaning
12. Tension loose
13. Bias
14. Alignment

5. Bowing
6. Notch mark
7. Narrow goods
8. Rugged cut
9. Fabric way
10. Measurement

3.3 Reporting Damaged or Torn Cut panels to supervisor

Preventive Action - is the action taken to prevent a potential mistake/error i.e. before it happens maintaining proper cutting tools& equipment. Preventive Action is the approach where the documented Error/Defect is worked upon so as to ensure that the same does not occur ever after. Often referred to as Permanent Solution. This would sometimes involve a change in process or creating a New Process or changing a Product or Machinery with the end goal being Permanent Solution

In a management system, a preventive action (PA) definition could be: "the activities taken by the organization to eliminate the cause of potential process nonconformity." In other words, preventive action is taken to fix the cause of a process problem before it can happen. If you are identifying potential problems that could happen in a process, assessing what could cause these problems, and taking action to prevent the problem from occurring before it happens, then you are taking preventive action.

3.4 Taking preventative action

Shade variation

Causes

- ✓ It arises due to improper cutting ,bundling and numbering
- ✓ Uneven to batch missing shade
- ✓ Different batch mixing for same garment

Solution

- ✓ After cutting the garment arts must be kept in proper bundle with number

- ✓ one batch fabric shade is used for same garment in ever part
- ✓ shade in making each parts due to fabric cutting

Hole

Causes

- ✓ Hole can come from fabric or in could be caused by the production side either by improper
- ✓ Trimming or broken needle puncturing and the fabric
- ✓ Very stiff and dry yarn

Solution

- ✓ Better inspection of fabric and cut piece
- ✓ Use fabric fault detector

Distorted knitting

Causes

- ✓ These defect can be identifying by looking at the surface area ,hey usually appear as irregular on the fabric

Solution

- ✓ Better inspection of fabric and cut piece. ensure the fabric and cut piece that are not up to standard are not put in to line and production is waste . replace one standard cut pieces with useable ones before input

Loos thread

Causes

- ✓ It appears due to improper trimming of finning Solution
- ✓ Thread trimming should be used
- ✓ Operates trimming
- ✓ Garment finishing should be checked properly

3.5 Follow up OHS practice

Workplace housekeeping may be defined as activities undertaken to create or maintain an orderly, clean, tidy and safe working environment. Effective housekeeping can eliminate many workplace hazards and help get work done safely and properly. Housekeeping can help prevent injuries and improve productivity.

- Every worker should play a role in housekeeping, even if that means keeping his or her own workspace clean.
- Housekeeping should be an ongoing process, not a one-time practice.

Effective housekeeping can help control or eliminate workplace hazards. Poor housekeeping practices frequently contribute to incidents.. Good housekeeping is also a basic part of incident and fire prevention. Effective housekeeping is an ongoing operation: it is not a one-time or hit-and-miss cleanup done occasionally. Periodic "panic" cleanups are costly and ineffective in reducing incidents.

3.5 .1 Purpose of workplace housekeeping

Poor housekeeping can be a cause of incidents, such as:

- tripping over loose objects on floors, stairs and platforms
- being hit by falling objects
- slipping on greasy, wet or dirty surfaces
- striking against projecting, poorly stacked items or misplaced material
- cutting, puncturing, or tearing the skin of hands or other parts of the body on projecting nails, wire or steel strapping

To avoid these hazards, a workplace must "maintain" order throughout a workday. Although this effort requires a great deal of management and planning, the benefits are many.

3.5.2 Benefits of good housekeeping practices

Effective housekeeping results in:

- reduced handling to ease the flow of materials
- fewer tripping and slipping incidents in clutter-free and spill-free work areas
- decreased fire hazards
- lower worker exposures to hazardous products (e.g. dusts, vapours)
- better control of tools and materials, including inventory and supplies

- more efficient equipment cleanup and maintenance
- better hygienic conditions leading to improved health
- more effective use of space
- reduced property damage by improving preventive maintenance
- less janitorial work
- improved morale
- improved productivity (tools and materials will be easy to find)

Clean the cutting room

Once the cut order has been cut and bundled, the work area needs to be cleaned and prepared for the next job. To do this you should make sure that: All remaining fabric is stored and ticketed correctly.



Fig.3.5.2.1 Fabric on appropriate place

Unused fabric quantities are recorded on the swing ticket. Do this by subtracting the fabric used and crossing out the original figure and replacing it with the new amount of fabric left.



Fig. 3.5.2.2 Sewing ticket

Machinery and cutting tools are inspected for wear and then maintenance is carried out if necessary. Return them to the correct storage place if they aren't going to be used immediately.



Fig 3.5.2.3 returns the material on its place

Safety equipment such as mesh gloves or dust masks is inspected for damage. If they are damaged they will need to be replaced. If they are in good condition they should be returned to their storage place.



Fig.3.5.2.4 Return material on its place

Return the sample garment, if there is one, and the pattern pieces to the correct storage areas.



Fig. 3.5.2.5 Return sample garment & pattern on its appropriate place

Equipment used for bundling is returned to its storage area. Have a cupboard where the bundling equipment is stored. Stocks are replaced as required by either taking them from the stock cupboard or re-ordering the item.

Floor and workstation are cleared of all fabric remnants, threads, dust, lint and rubbish.

Sweep it into a pile and place it in a plastic bag or lined bin and then remove it from the work area.



Fig. 3.5.2.6 cleaning work area

Self-check-3

Test-I: choice

Instruction: Select the best answer for following question. Do this by circling the identifying letter next to your answer. You have given 1 Minute for each question. Each of them carries 2 Points.

1) Which one of the following is NOT categorized under lay-up and marking tools and equipments?

A. 3 fingers metal gloves
C. Fabric weight
B. Fabric clip
D. T-square

2) What mode of marking should you use if the fabric is directional?

A. N/E/W
C. N/O/W
B. N/U/D
D. As we like

3) Which activity is NOT necessarily done before or during laying-up (spreading) of fabric?

A. Fabric is checked for faults
C. Marking length is determined
B. Fabric width and quality is checked
D. Pattern pieces are collected & checked

Test II: short Answer writing

Instruction: write short answer for the given question. You are provided 5 minute for each question.

1. Mention essential fabric property with relating to fabric type? (5 points)
1. What does mean Pattern Manipulation? (5 points)
2. Define Straight Grain line? (1 pt)
3. Wright the advantage of grin line? (3pts)
4. Write the difference between straight grain, cross wise grain & bias grain. (10pts)
5. What is selvage? (1pts)
6. Write the methods of marker drawing and copying (3 points)
7. Describe types of Lay-up (5 pts.)
8. Write the difference between with nap layout & without nap lay out (5 pots)
9. Write the difference between crosswise fold & Lengthwise double fold (5pts)
10. What is marker? (2pts)
11. What do you follow before marker making?(4pts)
12. What is the importance marker making for industrial garment preparation?(3pts)

13. Define Fabric spreading (2 points)
14. Describe types of fabric lay according to construction and according direction of spreading (8pts)
15. Write about relaxation (4 pts.)
16. How to inspect cut part? (3pts)
17. Write type of faults which is happen in cutting operation (7pts.)
18. Discuss about preventive action? (5pts.)
19. Write Major Defects Found in Woven Fabric? (10point)
20. Write the result of effective housekeeping. (8pts)

Note: Satisfactory rating – above 60% Unsatisfactory - below 60%

You can ask you teacher for the copy of the correct answers

Operation sheet-3

Lap Test-3

Unit Four: Perform Labeling and bundling

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Checking Storage equipment
- Bundling cut panel
- Folding and classifying cutwork
- Dispatching bundle product
- Maintain Recorded bundle cut work

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Check Storage equipment
- Check Labels and tags
- Bundle cut panel
- Fold and classifying cutwork
- Dispatch bundle product
- Maintain Recorded bundle cut work

4.1 Checking Storage Equipment

Storage equipment is used for holding or buffering materials over a period of time. Some storage equipment may include the transport of materials. If materials are block stacked directly on the floor, then no storage equipment is required. Storage racks are used to provide support to a load and/or to make the load accessible and it's better to use racks rather stack the material on the floor. We should regularly check and clean the rack according to its requirement/arrangement.

4.2 Bundling Cut Panel

Bundles of cutwork are prepared according to size, color and quantities, their actual composition determined by the requirements of the sewing room. E.g. all the components for one bundle of garments can be packed into one box or each of the major components packed in its own container ready to be issued to different preparation and sub-assembly sections in the factory.

In manual handling systems garment components are tied together to form a bundle for the sewing lines. Bundle size in Ethiopian factories varies from 20 to 100 garments, which increases the 'materials handling' at the needle point and the level of work-in-process (WIP), reducing the working space of the worker and increasing the throughout time of each bundle. Large bundles are a Disincentive and workers make mistakes by putting the wrong components together.

During bundling garment components/ parts MUST be identified properly to ensure that the correct component parts are assembled together.

Experience has shown that smaller bundle sizes:

- reduce worker fatigue,
- reduce the time it takes to produce one bundle,
- reduce worker errors, thereby improving quality,
- reduces the number of rejects in the production line and
- reduces materials handling at the needle point.

The bundling size can be decided based on the requirement of the line, type of cut fabrics, number of work stations and total number of components in a garment to be sewn.

Bundling" is the process of disassembling the stacked and cut pieces and reassembling them in production lots grouped by garment unit, color dye lot, and number of garments. The sorter sorts the patterns according to size and design and makes bundles of them. This step requires much precision because making bundles of mismatched patterns can create severe problems. On each bundle there are specifications of the style size and the marker too is attached with it.

Manufacturers use a variety of bundling methods depending upon their needs, with four basic systems being the most common among local manufacturers:

Item bundling – all pieces that comprise a garment are bundled together.

Group bundling – several (10-20) garments are put together in a bundle and given to a single operator or team to sew.

The purpose of bundle tickets is to: Monitor the progress of each specific garment, Ensure that all the correct parts are assembled together, and. Compensate operators for their work on each garment.

Ticketing: It is a process in which each cut piece of fabric is given a unique number so that the cut pieces of different sorts/shades do not get mixed and sewn together resulting in a defective/rejected garment. Ticketing machines are available to carry out this process. After ticketing is done, pieces of each type like collar, band, cuff, back, front etc. are bundled together and taken to subsequent operations.



Fig.4.2.1 Bundling





Fig.4.2.2 Ticketing

Progressive bundling – pieces corresponding to specific sections of the garment (such as sleeves or a collar) are bundled together and given to one operator. Other operators sew other parts of the garment, which are then assembled into the finished garment in the final phase.

Unit production system (UPS) – individual garment pieces are delivered to sewers using a computerized, fully mechanized "assembly line" that runs throughout the manufacturing facility. Using a UPS computer monitoring system, a manufacturer can fully track the production of a garment, identify where sewing slowdowns are occurring, and reroute garment pieces to other sewers who work more quickly. Gerber Garment Technology Inc. manufactures a UPS system, which eliminates the need for passing apparel piece bundles from worker to worker. This lowers labour costs because employees spend less time handling bundles and more time sewing. It also facilitates short-cycle manufacturing.

Modular or "team based" manufacturing is another type of bundling that combines some of the above characteristics. Developed in Japan, it is the grouping of sewing operators into teams of eight to ten. Rather than each sewer performing a single task, they work together on a garment from start to finish. One-third of the U.S. apparel industry has switched to either unit production or modular manufacturing. In Los Angeles, however, only a few major manufacturers engage in computerized unit productions (constituting about ten percent of total production) while the majority of contractors still use progressive bundling.

4.3 Folding and classifying cutwork

The manner of folding or superposing the plies in the bundles should be such that there is **(a)** minimum or no creasing, and **(b)** minimum or no disarraying of the cut alignment. Any deviation from these two principles increases the pick-up and positioning time for the sewing operator. If the bundle must be tied securely because of movement before the operator gets the bundle, care should be taken not to use cord or other ties which may mar the surfaces and edges of the cut plies.

Tier stack bins (or boxes) on castes are an excellent means for bundling and transporting cut sections without the necessity of bundle tying. This saves tying and untying time.

All bundles must be classified to include:

1. Model/ Style type or number
2. Size
3. Number of parts in the bundle
4. Serial number of the material

5. Production order number/ Customer
6. Bundles should be stored temporarily on a rack

4.4 Dispatching Bundle Product

Cut bundle are sent to stitching section as per the need of sewing floor and loaded to the line. Some factories prefer to send the whole lay to stitching section and bundling of the layer are done on the production line.

Bundler and dispatcher are different personnel who do different jobs. So, the dispatcher does the following activities:

- Check labels and tags or add if required. Basically, the tag should contain at least the following information: Style #, batch #, size, bundle #, quantity.
- Bag bundled products or otherwise prepare for pick-up or dispatch
- Ascertain dispatch instructions
- Dispatch product, or store in readiness for pick-up / dispatch using appropriate tools and equipment.

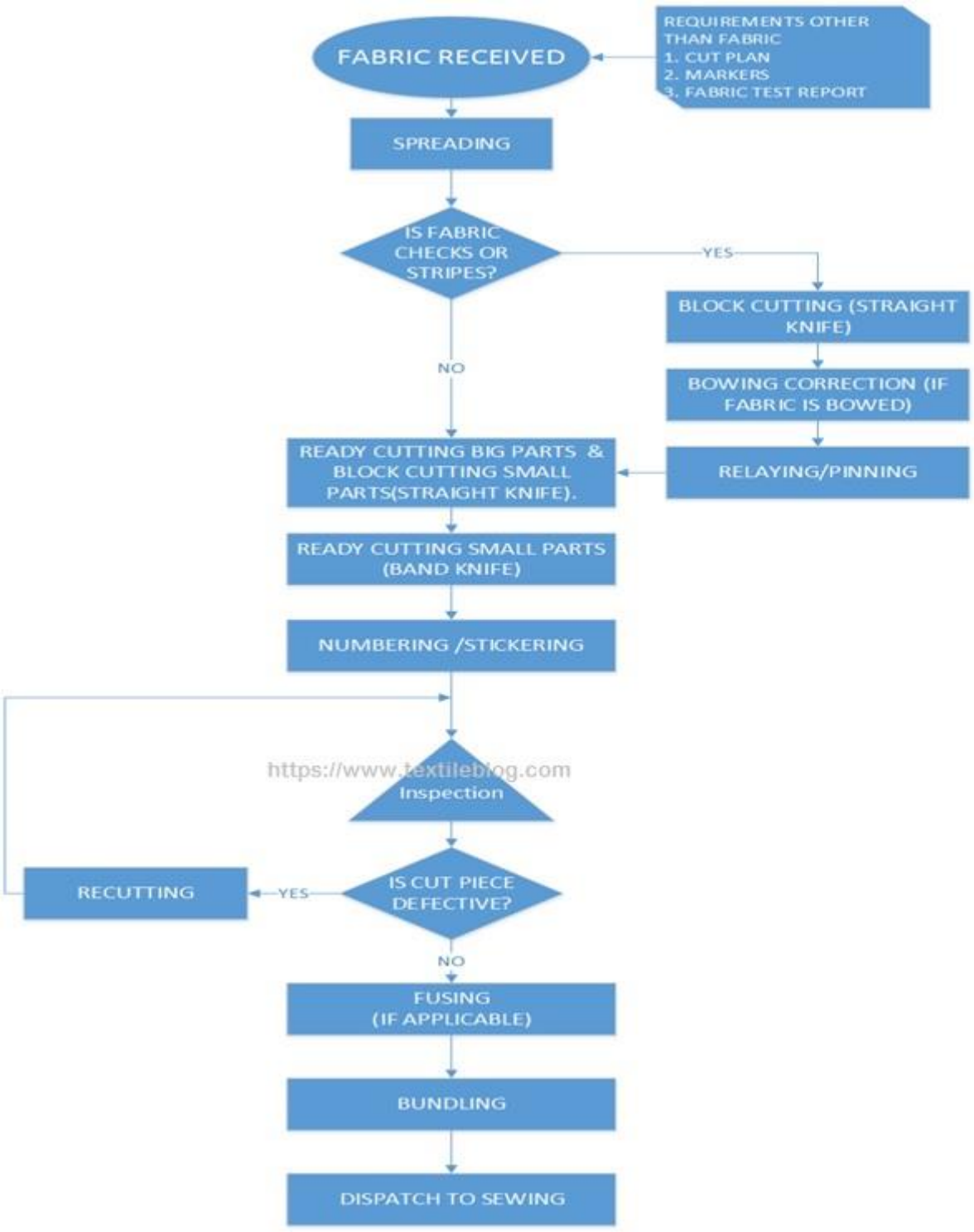


Figure 4.4.1 Dispatch to sewing

4.5 Maintain Recorded Bundle Cut Work

Efficient materials storage and handling. Storage and handling by themselves are not sources of additional value as during these operations goods do not acquire any new qualities. Discover why improved materials storage and handling can (among other advantages) recover misused space, and lower capital costs due to less work-in-progress and simplified stock control.

Extra stock is a waste. It requires storage, record keeping and handling. It ties up capital and some costly materials can become spoiled or obsolete. Leaving stock and work-in-progress around in the production area reduces the space available for production operations and impedes movement of workers. The more cluttered your shop-floor, the more likely materials and work-in-progress will be mixed up or lost. Workers spend valuable productive time looking for things.

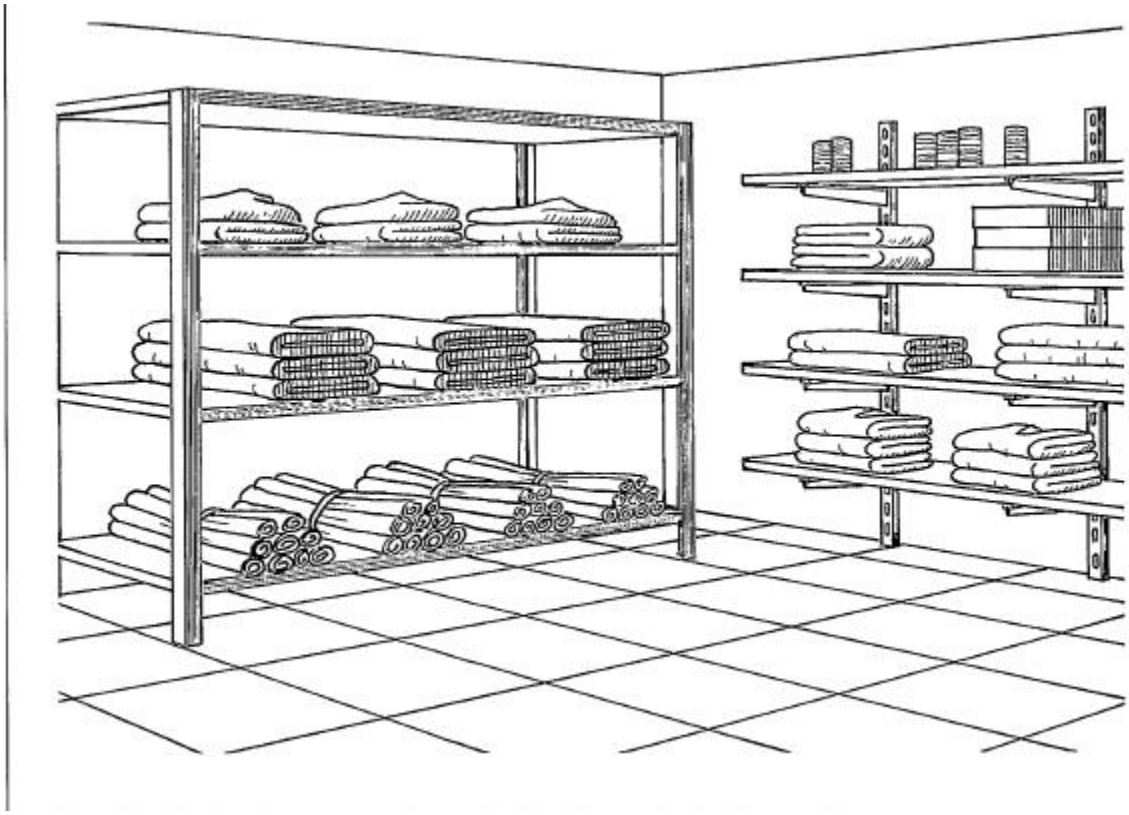


Fig.4.5.1 Items in stores

Bin card is used to mean a document that keeps a record of the items held in stores**.** Bin implies a container or space to keep materials, and with each bin, a card is placed, that comprises of details of material received, issued and returned. Moreover, it contains details relating to the number of items, their description and relevant notes (if any).

Bin card is used to quantitatively record the items received, issued and remained in the stores. As and when the transaction takes place, the entry is made in the bin card, after which the materials are taken to/given from stores.

At the time of receiving materials, the quantity is entered in the receipt column of the bin card from material requisition note (MRN), and on the transfer of goods to various departments, the entry is made in issue column of the card.

I.E. Example of BIN/STOCK CARD

Supplier Code :
Supplier Name :
Period :
Verified By :
Verified Date :

No	Date	Item Code	Item Name	UOM	Warehouse	In	Out	Remarks

Stock Control	
Maximum Qty	
Minimum Qty	
Reorder Name	

Self-check-4

Test-I Choice

Instruction: Select the best answer for each question. Do this by circling the identifying letter next to your answer. You have given 1 Minute for each question. Each carries 3 Points.

1) Experience has shown that smaller bundle sizes:
   A. reduce worker errors, thereby improving quality
   B. reduces the number of rejects in the production line
   C. reduce operators efficiency
   D. reduce worker fatigue
2) Manufacturers use a variety of bundling methods depending upon their needs except:
   A. Progressive bundling
   B. Item bundling
   C. Unit production system (UPS)
   D. Group bundling
3) Which bundling method uses a computer monitoring system, and can fully track the production of a garment.
   A. Unit production system (UPS)
   B. Item bundling
   C. Group bundling
   D. Progressive bundling
4) One of the following bundling methods is the grouping of sewing operators into teams of eight to ten. Rather than each sewer performing a single task, they work together on a garment from start to finish.
   A. Item bundling
   B. Group bundling
   C. Unit production system (UPS)
   D. Progressive bundling
5) Bundling" is the process of disassembling the stacked and cut pieces and reassembling them in production lots grouped by
   A. Garment unit,
   B. Color dye lot,
   C. Number of garments.

D. All of the above

E. None

6) _____ is the process of disassembling the stacked?

A) Item bundling B) Group bundling C) Bundling D) A&C

7) _____ is all pieces that comprise a garment are bundled together?

A) Progressive bundling C) Item bundling

B) Unit production system D) Group bundling

8) _____ is several garment (10-20) are put together in a bundle?

A) Progressive bundling C) Unit production system

B) Item bundling D) Group bundling

9) Which of the following are the bundler activities in inspection?

A) Inspect sample of cut fabric (cut work)

B) Don't report damaged cut works to supervisor

C) Don't complete documentation D) B&C

10) _____is a unique number given to each cut piece of fabric?

A) Bundling C) Dispatch B) Ticketing D) A&C

11) which of the following is the bundler activity in prepare finished cut works for Dispatch?

A) Fold & classify cut work B) Check storage equipment C) A & B D) All except "C"

12) Which of the following is equipment of bundling?

A) Manual or powered lifting C) Banding machine

B) Manual or powered packaging D) All of the above

13) Which one of the following is Tag should contain information?

A) Style Number B) Size C) Batch Number D) All of the above

14) Which of the following is manner of folding or superposing?

A) Minimum or No creasing B) Minimum or No Disarraying C) A & B D) All except "C"

15) _____are all bundles must be identified?

A) Model/style type B) Serial No C) Size D) All of the above

Test II: short Answer writing

Instruction: write short answer for the given question. You are provided 3 minute for each question and each point has 5 points.

1. Why should we have to check storage equipments regularly?
2. Write the meaning of Top Ply labeling and its uses.
3. Why do we have to use Bin/Stock card to store bundled fabric?
4. What do we mean when we say “Efficient materials storage and handling”

Note: Satisfactory rating – above 60% Unsatisfactory - below 60%

You can ask you teacher for the copy of the correct answers

Operation sheet 4.1 Sorting and bundling

Operation title: Sorting and bundling of cut parts according to size and shade.

Instruction: Trainees should identify the size & structure of different patterns.

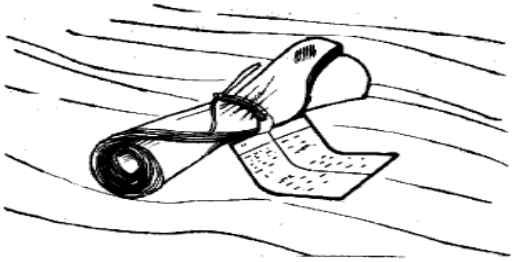
Trainees should have the experience of ticketing of cut pieces of fabric.

Purpose: To show how to Sort and bundle cut parts according to size and shade.

Equipment, Tools and Materials: Cut parts; Ticket/ Tag; Strap; Bundling table; Rag/ cloth and Staple remover.

Steps

1. Prepare materials, tools and equipment needed as shown.
2. Clean/remove fabric dust, trimmings and staple wires on the bundling table by using a piece of cloth.
3. Check ticket/tag with the cut parts for the style or job order.
4. Arrange the cut parts from large to small parts
5. Check sample garments for cut parts distributions.
6. Spread all parts of one size on the table.
7. Remove staple wires on the cut parts by staple remover as shown.
8. Count the number of ply up to the paper separator to separate style of different shade.



Note: Paper separator indicates the shade of the cut parts

9. With strap ticket/tag, tie cut parts together.

Note: The size and the name that is indicated in the ticket tags must be the same with the cut parts

10. Put the bundled cut parts to the bundle rack/box of cuts with ticket
11. Repeat steps 7, 8, 9 and 10 for all sizes.

QUALITY CRITERIA

1. Bundled cut garment parts are according to model, size and quantity or count.
2. Ticket or label contains complete information
3. No shade variation in the bundled pieces.

PRECAUTIONS: - Care must be taken during ticketing, sorting and bundling.

- Great attention should be taken during sorting of cut parts in order NOT to mix cut parts of different sizes and shades.

Lap Test-4

Task-1: Sort and bundle cut parts of blouse according to size and shade.

Unit Five: Dispatch Bundling Products

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Ascertaining Dispatch instructions
- Dispatching Product

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Ascertain Dispatch instructions
- Dispatch Product

5.1 Ascertaining Dispatch instructions

The following format can be used as an example for the cut piece dispatching.

Transfer Report Form from Cutting to Sewing

S/N	Order #	Item	Style #	Customer	Color	Bundle #	Size with transfer Quantity						Transfer by	Received by
							S	M	L	XL	2XL	TTL		

Prepared by……..Checked by…….Approved by……

Sign. & date……Sign. & date……Sign. & date……

5.2 Dispatching Product

It is to decide the best order of an operation in the process, and make instructions to workers. All of the operation order which reached a certain process does not have the same priority. Some can be delayed; some are urgent and are required to be handled first. The main functions of dispatching are to determine the priority, to set the best order, to make instructions, and to control the process.

Self-check-5

Test-I Choice

Instruction: Select the best answer for each question. Do this by circling the identifying letter next to your answer. You have given 1 Minute for each question. Each carries 3 Points.

Test II: short Answer writing

Instruction: write short answer for the given question. You are provided 3 minute for each question and each point has 5 points.

Note: Satisfactory rating – above 60% Unsatisfactory - below 60%

You can ask you teacher for the copy of the correct answers

Operation sheet-5

Lap Test-5

Unit Six: Complete Work

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- preparing cut work to next operation
- Recording and documentation

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- prepare cut work to next operation
- .Record and documentation

6.1 Preparing Cut Work To Next Operation

After cutting, garment parts must be prepared for the sewing operation. Cut parts are separated from the lay; they are moved to a separate table or section of table for sorting, position marking, ply marking, face identification, bundling, bundle ticketing and

Self-check-6

Test-I True or False

Instruction: If the statement is correct say True and if not correct say False. You have given 1 Minute for each question. Each question carries 3 Points.

Test II: short Answer writing

Instruction: write short answer for the given question. You are provided 3 minute for each question and each point has 5 points.

Note: Satisfactory rating – above 60% Unsatisfactory - below 60%

You can ask you teacher for the copy of the correct answers

Operation sheet-6

Lap Test-6

References

1) Complete Guide to Sewing; THE READER'S DIGEST ASSOCIATION LIMITED; 1987.
2) Industrial Engineering and Production Management, M. Mahajan, 2002 G.C
3) www.sketch.com .docs the interface inspection
4) htpps://www.researchgate.net pipcation (Associate design of fashion sketch and pattern
5) https://www.youtube.com/TUTORIAL-Fashion figure step by step
6) https://www.youtube.com/steps in fashion illustration

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