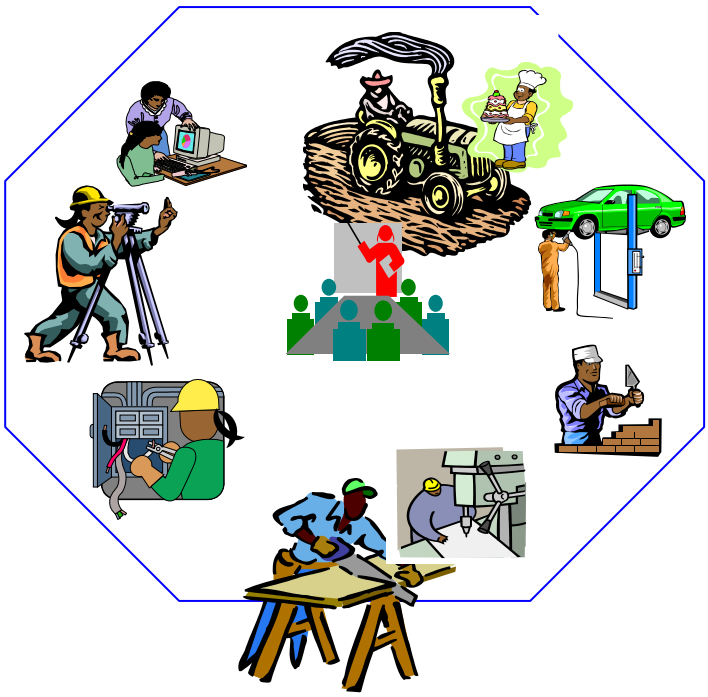
Basic Footwear Production Operations LEVEL I

Based on Nov, 2019 V5 OS and Feb, 2020 V1

Curriculum



Module Title: - Perform Pre-fabrication Works

LG Code: BFP1 M09 LO9(1-9) LG(43-51)

TTLM Code: **BFPI** TTLM 1220v1

Dec, 2020

Contents

LG #43	LO#-1 Identify and use hand tools, equipment and machines

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

Identifying hand tools and equipment

- **Checking tools for serviceability, safety and faults.**
- **Clearing work area following workplace standard procedures.**
- **Cleaning, checking, maintaining and storing hand tools and equipment**
- **Obtaining work instructions, specifications and operation details**
- **Identifying safety of operator and workplace**

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to – Hand tools and equipment which are consistent with prefabrications are identified.

- Tools are checked for serviceability, safety and faults.
- Work area is cleared following workplace standard procedures.
- Hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and work standard practices
- Work instructions, specifications and operation details related to prefabrication machines are obtained
- Safety with regard to tools, equipment and machines is identified.
- Safety of operator and workplace is identified

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the “Information Sheet 1”.
3. Accomplish the “Self-check 1”.
4. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #2.
5. Submit your accomplished Self-check. This will form part of your training portfolio.
6. Read the information written in the “Information Sheets 2”.
7. Accomplish the “Self-check 2.
8. If you earned a satisfactory evaluation proceed to “Information Sheet 3”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #6.
9. Read the information written in the “Information Sheet 3”.
10. Accomplish the “Self-check 3”.
11. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #9.
12. Read the information written in the “Information Sheet 4”.
13. Accomplish the “Self-check 4” .
14. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #12.
15. Read the information written in the “Information Sheet 5”.
16. Accomplish the “Self-check 5”.
17. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #13.
18. Read the information written in the “Information Sheet 6”.
19. Accomplish the “Self-check 6”.
20. If you earned a satisfactory evaluation proceed to “Information Sheet 5”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #14
21. Request you teacher to observe your demonstration of the exercises and give you feedback.

Information Sheet 1- Identifying hand tools and equipment

1.1 Hand Tools and equipment used to pre fabrication operation

- Working table
- Nylon board
- Folding hammer
- Scissor
- Work stone
- Adhesive container
- Adhesive application brushes
- Ramp
- Leather thickness measuring gauge
- Plastic basket

1. **Folding hammer :-** Helps in folding edges.

Hammer

2. **SCISSORS:-** It is used for lining trimming & can also be used for thread trimming.

3. **Work Stone :-** It is used for hammering, folding and fitting work. This is used as a base for the skiving operation. This is found in square and rectangle shape and has different dimensions according to the space available in the closing room. The both top and bottom surfaces of the stone is found very smooth, which helps in providing fine base for the skiving tools. It also used to sharpen the edge of the tool during skiving.

4. **Adhesive container:** To keep adhesive.

5. **Adhesive application brushes**: This is a normal brush and used to clean the passage used for dust and different surfaces of the machine bed. During skiving scarf is coming off from the flesh side of the material and stuck inside the various cavities exists with the mechanism.

6. **Ramp:-** It is used during manual skiving of cut components. This tool is mostly used in sample making, as one or two pairs are been made during sampling. This tool is mostly found in two categories are light and heavy RAMPI. The light Ramp is used for the upper material skiving and heavy one is used for bottom component skiving.

7. **Leather thickness measuring gauge** used to measure the thickness of the component before and after skiving. This measures the material thickness in millimeters and to maintain its accuracy level, it is calibrated accordingly.

Information Sheet 2- Checking tools for serviceability, safety and faults.

Information Sheet 3- Clearing work area following workplace standard procedures.

Clean work area and hand tools:

The objective of this information sheet is to show you how to keep work areas and tool clean and operational. At the end of each working day clean the tools and equipment you used and check them for any damage. If you note any damage, tag the tool as faulty and organize a repair or replacement.

Preparation and Safety:

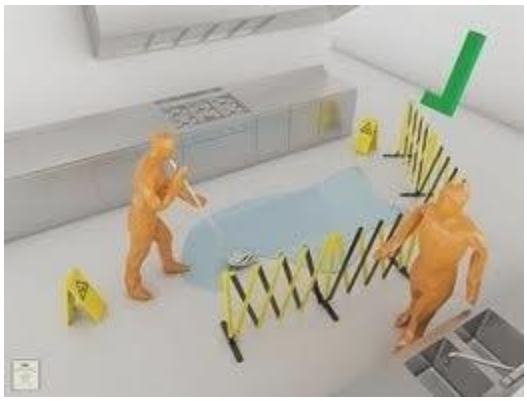
Personal safety:

Whenever you perform a task in the workshop you must use personal protective clothing and equipment. Among other items, this may include:

- Work clothing - such as coveralls and steel-capped footwear
- Eye protection - such as safety glasses and face masks
- Ear protection - such as earmuffs and earplugs
- Hand protection - such as rubber gloves and barrier cream
- Respiratory equipment - such as face masks and valved respirators

If you are not certain what are appropriate or required, ask your Instructor.

Safety check:



- Some cleaning agents are toxic. Refer the instructions on any cleaning agent and follow any recommendations before using it.
- Do not use flammable cleaners or water on electrical equipment.
- Make sure designated walkways are kept clear of any obstructions.
- Always wear protective clothing and the appropriate safety equipment.
- Make sure that you understand and observe all legislative and personal safety procedures when carrying out the maintenance tasks. If you are unsure of what these are, ask your Instructor.

Points to Note:

- Clean tools and equipment helps work more efficiently. At the end of each working day clean the tools and equipment you used and check them for any damage. If you note any damage, tag the tool as faulty and organize a repair or replacement.
- Electrical current can travel over oily or greasy surfaces. Keep electrical power tools free from dust and dirt and make sure they are free of oil and grease.

- All workshop equipment should have a maintenance schedule. Always complete the tasks described on the schedule at the required time. This will help to keep the equipment in safe working order.
- Store commonly used tools in an easy-to-reach location. If a tool, or piece of equipment, is too difficult to return, it could be left on a workbench or on the floor where it will become a safety hazard.
- Keep your work area tidy. This will help you work more efficiently and safely.
- Always use chemical gloves when using any cleaning material because excessive exposure to cleaning materials can damage skin.
- Some solvents are flammable. Never use cleaning materials near an open flame or cigarette.
- The fumes from cleaning chemicals can be toxic, so wear appropriate respirator and eye protection wherever you are using these products.
- When cleaning products lose their effectiveness they will need to be replaced. Refer to the suppliers' recommendations for collection

or disposal. Do not pour solvents or other chemicals into the sewage system. This is both environmentally damaging and illegal.

Cleaning of equipments

To maintain cleaning equipment and keep it in a good working condition, it must be thoroughly cleaned and stored correctly every time it is used. If regular maintenance does not occur, the equipment may, over time, become dangerous to individuals.

Equipment and Floor that will need cleaning includes:

- Garbage receptacles
- Pans
- Brooms, dusters and brushes

- Mops and buckets
- Electrical equipment, Ex: vacuum cleaners, polishers, scrubbers.

  Every time a piece of equipment is used, the general rule is to clean it straight away so it is ready for the next person to use. The manufacturers' instructions should be strictly followed when maintaining and cleaning equipment.

Cleaning of Work Area

You have to be:

- Clear and clean the area
- Store any reusable materials
- Check, clean and store away any tools and equipment
- Dispose of hazardous and non-hazardous waste according to legal and workplace requirements.

Information Sheet 4- Cleaning, checking, maintaining and storing hand tools and equipment

SKILLS AND ACTIONS NEED TO CLEAN UP YOUR OWN WORK AREA

Cleaning and clearing techniques:

- Select and use an appropriate method for cleaning
- tools and specialist equipment
- any leakages
- Restore your work area to a safe and tidy condition
- Make sure that any materials, components, tools and equipment that you may need for the next task are set up ready for use.

Material storage techniques:

- Sort reusable equipment, components and materials from waste
- Reusable materials are correctly stored
- All tools and equipment are properly stored.

Safe disposal techniques:

- Handle and dispose of waste materials appropriately according to organizational and legal requirements
- Recognize what materials are hazardous and require special procedures

- Report any problems associated with cleaning, storing or disposing of materials and equipment to the relevant person.

Hazardous and non-hazardous materials:

- Types of waste material generated in the work area
- Know how to handle hazardous waste and reusable materials safely including:
  - Fluids
  - Adhesives
  - Solvents.
- Personal protective equipment is required and how to use it.

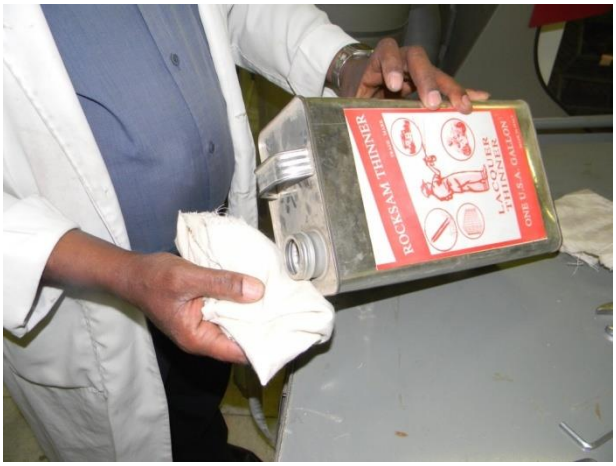
Step by Step Instructions:

Clean hand tools

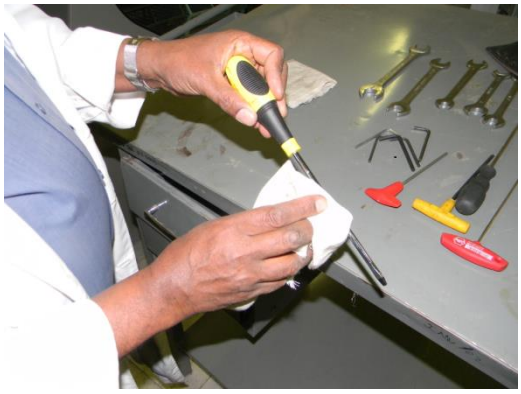
Keep your hand tools in good, clean condition with two sets of rags. One rag should be lint-free to clean or handle precision instruments or components.

The other should be oily to prevent rust and corrosion.

- Use kerosene/solvent for cleaning tools



- Clean tool and keep their place



Clean floor:

Wipe off any oil or grease on the floor and check for fluid leaks. If you find any, top up the hydraulic fluid. Occasionally, apply a few drops of lubricating oil to the wheels and a few drops to the posts of the safety stands.

Points to Note

- Clean tools and equipment helps work more efficiently. At the end of each working day clean the tools and equipment you used and check them for any damage. If you note any damage, tag the tool as faulty and organize a repair or replacement.
- Electrical current can travel over oily or greasy surfaces. Keep electrical power tools free from dust and dirt and make sure they are free of oil and grease.
- All workshop equipment should have a maintenance schedule. Always complete the tasks described on the schedule at the required time. This will help to keep the equipment in safe working order.

- Store commonly used tools in an easy-to-reach location. If a tool, or piece of equipment, is too difficult to return, it could be left on a workbench or on the floor where it will become a safety hazard.
- Keep your work area tidy. This will help you work more efficiently and safely.
- Always use chemical gloves when using any cleaning material because excessive exposure to cleaning materials can damage skin.
- Some solvents are flammable. Never use cleaning materials near an open flame or cigarette.
- The fumes from cleaning chemicals can be toxic, so wear appropriate respirator and eye protection wherever you are using these products.
- When cleaning products lose their effectiveness they will need to be replaced. Refer to the suppliers' recommendations for collection or disposal. Do not pour solvents or other chemicals into the sewage system. This is both environmentally damaging and illegal.

Work area should be cleaned as per standard procedure:

Work area should be cleaned by following workplace standard procedures:

- **Dust bins for bio-degradable waste materials**

  Bio-degradable garbage (waste materials) means the garbage or waste materials that are capable of being destroyed by the action of living beings.
- **Dust bins for non-biodegradable waste materials**

A Non-bio-degradable waste material (garbage) means the garbage or waste materials that are not capable of being destroyed by the action of living beings.

- **Cleaning of workshop**

  Clean floors and decking at the end of each shift and place all rubbish and waste in approved containers for disposal.

- **Housekeeping of cutting department**

  -Good housekeeping promotes safety and prevents accidents.

  -Do not use any equipment if it is damaged. It is important to tag it out and report it to your supervisor immediately.

  - Always practice good housekeeping before, during and after the job.

- **Housekeeping of leather stores**

  In footwear manufacturing the leather must have good quality in order to be used for footwear production. Leather stores plays a big role in taking care of the leather stored so housekeeping of leather stores must be given an emphasis.

  The store must be clean and free of dusts and other waste materials.

Self-Check 3&4	***Written Test***

Instructions: Write all your answers in the provided answer sheet on page 13.

Test I: Short Answer Questions

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers. **(Total points: - 10)**

1. What is the difference between Bio-degradable and Non-bio-degradable waste materials? (Points: 2)
2. What is the need of housekeeping in cutting department? (Points: 2)
3. Why housekeeping is important for leather stores? (Points: 2)
4. What are the cleaning and checking method of hand tools? (Points: 4)

Information Sheet 5- Obtaining work instructions, specifications and operation details

Information Sheet 6- Identifying safety of operator and workplace

Once all machinery and plant have been identified, the hazards associated with them can be identified.

- **Physical hazards** are such as noise, heat/cold, radiation, microwaves, etc.
- **Chemical hazards** are derived from chemical used in the work place including toxic gases, noxious fumes and flammable/ corrosive liquids.
- **Ergonomic hazards** are related to physical dimensions of equipment, the placement of equipment and accessibility of a storage area, the weight of equipment or the support of furniture.
- **Movement hazards** are caused by a manual handling such as lifting or moving loads and repetitive movement**.**

Occupational Health and Safety requirements

Protective clothing

Protective clothing is that protects the head, body, and extremities, and consists of at least the following components: Foot and leg protection, hand protection, body protection, eye, face, and head protection. All firefighting members will wear protective clothing meeting the requirements of OSHA (29 CFR 1910.156) and summarized below:

1.Foot and leg protection. Foot and leg protection will be achieved by either of the following methods:

Fully extended boots which provide protection for the legs; or

Protective shoes or boots worn in combination with protective trousers.

2.Body protection

Body protection will be coordinated with foot and leg protection to ensure full-body protection for the wearer. This may be achieved by one of the following methods:

Wearing of a fire-resistive coat in combination with fully extended boots; or
Wearing of a fire-resistive coat in combination with protective trousers.

2.Hand protection.

Hand protection will consist of protective gloves or glove system which will provide protection against cut, puncture, and heat penetration.

3.Head, eye, and face protection.

Head protection shall consist of a protective head device with earflaps and chinstrap. Protective eye and face devices will be used by fire-brigade members when performing operations where the hazards of flying or falling materials which may cause eye and face injuries are present.

4.Emergency actions

- Raise the alarm – anyone who discovers a fire shall immediately inform all his colleagues who might be affected by the fire.

- Attack the fire – try to extinguish the fire with the available first aid firefighting equipment only if safe to do so.

5.Safety requirements

Cutting machine/clicking machine

In using a Cutting machine/clicking machine the following safety rules must be followed.

Do not operate the machine without prior approval

Do not work without written job order card

Only one person is allowed to work on the machine at one time

Before the start of the cutting, check the die for the Article, Size, and Upper/lining/interlining.

Before starting cutting, set the pressure and adjust the aluminum plate 10mm above the die

Check the die for deformation of shape before proceeding for cutting

Do not keep the Dies on top of the other

Switch off the machine when not in use

Use only one die on the Nylon board while cutting material

Knives:

- Use the right knife for the task.
- Keep knives sharp
- Always cut on a stable surface, like a cutting board.
- Always cut away from your body.
- Store knives safely in a rack or knife block.
- Don't leave knives in washing –up water.
- Always carry knives with the blade pointing downwards.

Splitting machine

Do not operate the machine without prior approval

Switch off the machine when not in use

Only one person is allowed to work on the machine at one time

Do not work without written job order card

Grinder

In using a grinder especially for blade making; the following safety points must be followed.

Hair must be tied back

Wear tight clothes

Shoe must be protective

Do not operate the machine without prior approval.

Do not work without safety glass.

Only one person is allowed to work on the machine at one time.

Switch off the machine when not in use.

Do not spill the water on the machine.

Break the hack saw blade on the vice.

Do not wear loose cloth while sharpening the blade,

Clean your work place after completing your work.

Do not walk around carrying the knife with the cutting blade exposed. It can cause injury.

Do not try and catch a falling knife instead when it is not in use put your knife in a secure place

Strap cutting machine

Do not operate the machine without prior approval

Switch off the machine when not in use

Only one person is allowed to work on the machine at one time

Do not work without written job order card

Skiving machine

In using a skiving machine the following safety rules must be followed.

Set and check the rotary parts of the machine before switch on the machine.

Belt guard should be in place.

While sharpening the knife care should be taken so that scraps do not catch fire due to sparkles.

Work area must be kept tidy.

Never use hand to remove jammed material, use a brush or stick.

Wear specified mask during skiving.

Wear specified glass during dressing and sharpening.

Use finger guard during skiving.

Use appropriate footwear and apron.

Know your fire drill.

Inform your superior in case of any events.

Keep your tools and accessories in reachable place.

Stamping machine

Do not operate the machine without prior approval.

Only one person is allowed to work on the machine at one time.

Switch off the machine when not in use.

do not spill the water on the machine

do not wear loose cloth while working,

place the component on machine platform carefully

keep the hands away from the heated number plate/die

Clean your work place after completing your work.

Empty the leather waste in to waste bin only.

Self-Check 6	***Written Test***

Instructions: Write all your answers in the provided answer sheet

Test I: True or False: (Total points: 8X8=8)

1.Do not work without written job order card.

2.Only one person is allowed to work on the machine at one time

3.Before the start of the cutting, do not check the die for the Article, Size, and Upper/lining/interlining.

4.Before starting cutting, do not set the pressure and adjust the aluminum plate 10mm above the die

5.Check the die for deformation of shape before proceeding for cutting

+Keep the Dies on top of the other

Switch off the machine when not in useUse only one die on the Nylon board while cutting material

:

LG #44	LO#2 Setup machine and associated equipment/accessories

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

Identifying the different prefabrication operations
Determining and confirming product and/or work specification
Checking machines functionality
Determining and confirming product /work specification
Starting up and shutting down Machines following standard procedure
Band knife/ bell knife sharpening procedures
Checking and replacing Stamping foil as required
Checking and adjusting Blade alignment as needed
Lubricating, cleaning and maintaining machineries
Setting up work station applying the ergonomics

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- The different prefabrication operations are identified as per standard guidelines.
- Product and/or work specification is determined and confirmed.
- Machine is checked for functionality and a
- Machine adjustment is done according to work specifications
- Machine is started up and shut down as per standard procedures and according to safety requirements.
- Band knife/ bell knife sharpening procedures are followed to manufacturer's specifications.
- Stamping foil is checked and changed/ replaced as required.
- Blade alignment is checked and adjusted as needed.
- Prefabrication machines are regularly lubricated, cleaned and maintained as per maintenance schedule.

- Workstation is set-up applying the ergonomics of the work environment

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the “Information Sheet 1”.
3. Accomplish the “Self-check 1”.
4. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #2.
5. Submit your accomplished Self-check. This will form part of your training portfolio.
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15. Read the information written in the “Information Sheet 5”.

16. Accomplish the “Self-check 5”.
17. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #15.
18. Request you teacher to observe your demonstration of the exercises and give you feedback.

Information Sheet 1_ Identifying the different prefabrication operations

Skiving operation

The skiving operation is required to perform to achieve various treatments in upper closing like folding, back seam, attaching component together, cording, binding, bag top line, French binding etc. Different types of skiving are required to do different kinds of operations. In case of leather, skiving operation is much easier to perform than on synthetic material. The skiving is not being done on textile due to its nature & feel. Skiving can be performed in following ways:

- Manual hand skiving
- Machine skiving

Hand Skiving

This skiving is normally done in small units to make uppers and samples, as they cannot spend on infrastructure. This method of skiving is not suitable for big orders and therefore only adopted by local shoe industry. Local shoe manufacturers are producing small quantity of uppers and facing financial backlogs. Various tools and accessories are used during this skiving are, Rampi, work stone and sharpening stone. This type of skiving is mostly done on piece rate bases by the operatives and hence the quality and material strength is needed to be check

during skiving. The work stone should be neat and clean before placing the component over it. The hand tool is then operated in skilled manner for the various skiving obtained. Therefore this skiving is required more skill. Normally an operator can do approximate 80-90 pairs (depends on No of components in upper) in eight hours shift with quality. The tooling and accessories cost for this skiving is less and even a common cobbler can afford to buy these tools. Hence it is very good system of skiving for local manufacturers, who cannot invest much on infrastructure. The hand tool used for this skiving is called RAMPI.

Splitting operation

Splitting operation is usually carried out on a band knife splitting machine it reduces the whole area of the material to a given substance. It helps as for reducing the thickness of material to enable it in to the shape of the foot.
Before splitting process leather thickness must be measured by using micrometer or thickness gauge.

Embossing operation

Stamping operation is pneumatically operated to press an engraved metallic die on the component. The metallic die stamp or engraved wheels containing numbers are heated to the required temperature the lining or sock lining or is placed between the strip of marking foil is then automatically drawn forward ready for the next operation. Die temperature pressure of application stamping time are all adjusted and can be preset.

Fusing operation

The word fusing is used for fixing a sugar coated fabric to a particular material for reinforcing and strengthen purpose by fusing machine. Different kinds of material are used in shoe making and leather is rated best to make a comfortable and hygienic shoe. Leather being a natural material has fibrous structure, which can have loose flesh, soft feel and thin substance. To make a good presentable shoe out of this type of material, we need to have a special treatment called reinforcing or interlining attaching. This makes the upper component durable during production and provides better shape retention to the finished shoe. In order to reinforce the concerned material, different kinds of reinforce material can be used according to their purpose, uses and benefits. Some of the material is as follows:

a. Thin leather pieces
b. Fabric

c. Sugar coated material
d. Pressure sensitive material (heat base)
e. Solvent base
f. Self-adhesive nylon or cotton tapes

The thin leather pieces are attached with the required components for necessary support by the help of suitable adhesive. It costs less, as this type of leather is available on cheap rates and remains stays comfortable due to its natural properties. Fabric is also used for interlining purpose and costs cheap. But care should be taken during selecting the adhesive for attaching it. Coating of chemical is done on fabric in form of grains called sugar coated fabric and pressed under the heated press. Care should be taken during attaching is suitable temperature according to material being used.
Pressure sensitive material is pressed under the heat and gets fixed with the upper material during lasting. Toe puff and stiffeners are cut from the thermoplastic sheet and fixed with the upper to reinforce the fore and back part of shoe.

Marking operation

Marking is the process to identify the fitting places for other components like eyelets, ornaments, decoration stitch and cording.
In this operation, marks are put on the upper material to enable the operatives to position/fit the components together accurately before stitching. This enables the fitting operations easy and convenient during upper making. Stitch marking ensures for the position of any kind of fancy stitching to be done on upper and also helps in identifying the positions of eyelets, buckles, ornaments, punching etc. There are various methods of stitch marking available in footwear industry are in use according to their requirement and feasibility. The selection of the marking method depends on the production situation and resources available. This will also depends on the cost of marking resource, productivity and order quantity. Following are the different marking methods available in the footwear industry with their merits and demerits.

- Prick Marking
- Pricking Awl
- Stitch-making Machines

Edge coloring

Edge color is done on the raw edges left in the component as per specification given. And it is done before skiving operation.

1. Edge inking could be carried out by holding the components with a clamp and then Colorings them either by brush/sponge.

2.Ink should be applied evenly on the raw edges.

3Care should be taken for over flowing of ink, which can hamper the adhesive bond or may irritate the wearer's skin or damage the grain side of component.

1. During pressing the components under pneumatic pressure, care should be taken against any mark or surface damage.

5. Gimped edge could be colored by pressing them against a sponge saturated with ink.

6. If some component needs to be edge inked after stitching, then each piece has to ink individually with a felt pen, wax crayon or a small sponge.

7. Edge color should match the required specification.

8. Manual inking by sponge or wooden stick is time consuming and hence not suitable for mass production during edge inking.
9. All the raw edge components are staked together and necessary color/ink is applied with the help of sponge, knotted cloth piece on wooden stick or by spray.

Attaching self-adhesive re-enforcements

- Reinforcements are used to give extra strength to the weaker areas of the shoes, which are prone to failure. In shoe making reinforcement are small pieces of leather or other material or tapes which are stitched to the upper between the upper shell and lining shell to strengthen the points where strain and wear are greatest for example, the top lines, back seam, Punches and derby stay etc.
- Different types of reinforcements are available in percent shapes or tapes and sheets to suit the different category of footwear. Now days various materials like nylon, Polyester, Cotton, Paper etc are being used as reinforcement for footwear. Reinforcements are available in different width and colors and thickness of reinforcement may vary from 0.2mm to

0.5mm. These may be either pressure sensitive or heat sensitive or self-adhesive and may be woven, non-woven, knitted or braided.

Choice/Type of Material for Reinforcement Depends upon Many Factors

- Material of upper
- Style of upper
- Possible areas for reinforcement in relation to design and function.

Need of reinforcement:

As the name implies, reinforcements means adding strength or reinforce the material to which they are attached. Their purpose is as follows:

- Reinforces the material to which it is attached.
- Adds strength to the material, thus ensuring durability.

- Helps in overcoming shoemaking problems by preventing stretching of material.
- Helps in retaining the appearance/ shape of the shoe.
- Enhances the final get up and appearance of the shoe.

Types of reinforcements

Attaching Reinforcements

Adhesive is required to attach the reinforcement. This adhesive may be pre- coated or applied by hand/ machine at factories.

Pressure Sensitive

These are also pre-coated but combined with a release paper. The liner paper is removed and the adhesive side is pressed down on the required piece by hand. These are available in roll or sheet form and are cut to suit the needs.

Information Sheet 2- Determining and confirming product and/or work specification

Operations requirements

Skiving

Safety

1. Switch off the m/c when not in use.
2. Do not make your own electrical repairs.
3. Keep your fingers away from moving parts.
4. Know your fire drill.
5. In case of any accident, no matter how minor, inform your instructor.
6. To remove jammed material, use a stick or brush.
7. Place scraps in a metal dustbin at the end of the day.
8. Keep your work area tidy.

9. Sit squarely on your chair, within reach.
10. Do not wear loose clothing

Pre-operation check:

1. Knife should not be touching the pressure foot.
2. Feed roller should not be touching the knife.
3. Pressure foot should not be touching the feed roller.
4. Make sure the sharpening stone is not touching the knife.
5. There should not be any jammed material in the m/c.

Machine operation:

1. Position the guide and Pressure foot.
2. Switch on the m/c.
3. Depress the treadle.
4. Stack your work on the bench top to the left of the m/c.
5. Feed in the leather with the grain side up.
6. Keep the leather to the guide.
7. Run straight through.
8. Place the skived piece of leather upside down on the m/c bed.
9. Pick up the next piece and skive as before.
10. After completing your work, switch off the m/c.

Splitting

Safety:

1. Switch off the m/c when not in use.
2. Do not make your own electrical repairs.
3. Keep your fingers away from moving parts.
4. Know your fire drill.
5. In case of any accident, no matter how minor, inform your instructor.
6. To remove jammed material, use a stick or brush.
7. Place scraps in a metal dustbin at the end of the day.
8. Keep your work area tidy.
9. Sit squarely on your chair, within reach.
10. One person is allowed to work on the machine at one time.
11. Do not wear loose clothing

Pre-operation check:

1. Receive the material with work-ticket. Verify the material for quality and quantity issued.
2. Knife should not be touching to any parts of the machine.
3. Feed roller should not be touching the knife.
4. There should not be any jammed material in the m/c.

Machine operation:

1. Set the correct thickness before starting splitting of components
2. Match the split component with the thickness gauge once a day.
3. Do not split leather in layers.
4. Clean your work place after completing your work.
5. Empty the leather waste in to waste bin only.
6. After completing your work, switch off the m/c.

Stamping

Safety:

1. Switch off the m/c when not in use.
2. Do not make your own electrical repairs.
3. Keep your fingers away from moving parts.
4. Know your fire drill.
5. In case of any accident, no matter how minor, inform your instructor.
6. Keep your work area tidy.
7. Sit squarely on your chair, within reach.
8. One person is allowed to work on the machine at one time.
9. Do not operate the machine without prior approval
10. Keep the hands away from the heated number plate/die
11. Do not spill the water on the machine
12. Do not wear loose clothing

Pre-operation check:

1. Receive the material with work-ticket. Verify the material for quality and quantity issued.
2. Receive the cut-components with upper job card on 10 Pairs basis.
3. No. of upper and lining components should be counted properly
4. Temperature of the machine should be correct
5. Pressure in the machine should be correct.
6. Printing foils should be of correct color according to the specification

Machine operation:

1. Set the digits as per article no., batch no, lot no, sizes and any other specification provided by the customer while stamping on the components
2. Match the stamped component with the sample.
3. Do not split leather in layers.
4. Check for the temperature of the heated number plate / die (70-80 degree Celsius).
5. Clean your work place after completing your work.
6. Empty printing foils waste in to waste bin only.
7. Place each component on machine platform carefully with specified margin/place on the components.
8. Keep the hands away from the heated number plate/die

Inter-lining attaching (fusing)

Safety:

1. Switch off the m/c when not in use.
2. Do not make your own electrical repairs.
3. Keep your fingers away from moving parts.
4. Know your fire drill.
5. In case of any accident, no matter how minor, inform your instructor.
6. Keep your work area tidy.
7. Sit squarely on your chair, within reach.

8. One person is allowed to work on the machine at one time.
9. Do not operate the machine without prior approval
10. Keep the hands away from the heated parts
11. Do not spill the water on the machine
12. Do not wear loose clothing

Pre-operation check:

1. Receive the material with work-ticket. Verify the material for quality and quantity issued.
2. Receive the cut-components with upper job card on 10 Pairs basis.
3. No. of upper and lining components should be counted properly
4. Temperature of the machine should be correct
5. Pressure in the machine should be correct.
6. Interlining material should be checked properly and as per specification.
7. Reinforcement material should be compatible with corresponding material.
8. Woven (stretch) reinforcement material should be selected for fixing under stretching areas (lasting pulls) of upper.
9. Non-woven reinforcement material should be selected for fixing under punching and perforated areas like eyelets and brogue punches.
10. Braided reinforcement (nylon) material should be used for fixing under folding and top lines.

Machine operation:

1. Match the attached interlining components with the sample.
2. Check for the temperature of the machine.
3. The temperatures must be kept constant, with minimal fluctuations throughout the day.
4. Clean your work place after completing your work.

5. Place each component on machine platform carefully with specified margin/place on the components.
6. Keep the hands away from the heated plate
7. In case of heat activated reinforcement is used; make sure that the temperature and dwell time is correct. Check for correct adhesion and placement of reinforcement. Use an electronic thermometer, melting crayons or temperature sensitive papers. Do not rely on the temperature gauge and timer fixed when carrying out these checks.
8. Ensure for stitching over reinforcement.
9. Reinforcement fixing should be avoided over lasting margins (especially in cement lasting), as it hinders the pasting operation during lasting.
10. Non-woven reinforcement material should be used under perforations.
11. Woven or knitted reinforcement material should be used all around lasting pulls.

Marking

In this operation, marks are put on the upper material to enable the operatives to position/fit the components together accurately before stitching.

In this operation, marks are put on the upper material to enable the operatives to position/fit the components together accurately before stitching. This enables the fitting operations easy and convenient during upper making. Stitch marking ensures for the position of any kind of fancy stitching to be done on upper and also helps in identifying the positions of eyelets, buckles, ornaments, punching etc. There are various methods of stitch marking available in footwear industry are in use according to their requirement and feasibility. The selection of the marking method depends on the production situation and resources available. This will also depends on the cost of marking resource, productivity and order quantity. Following are the different marking methods available in the footwear industry with their merits and demerits.

- **Prick Marking**
- **Pricking Awl**
- **Stitch-making Machines**

Edge coloring

Edge color is done on the raw edges left in the component as per specification given.

Safety points

1. Care should be taken for over flowing of ink, which can hamper the adhesive bond or may irritate the wearer's skin or damage the grain side of component.
2. Ink should be applied evenly on the raw edges.
3. During pressing the components under pneumatic pressure, care should be taken against any mark or surface damage.
4. Manual inking by sponge or wooden stick is time consuming and hence not suitable for mass production during edge inking.

Operation Method

1. Edge inking could be carried out by holding the components with a clamp and then Colorings them either by brush/sponge/spraying (For spraying, a spray booth is required). This must be done before stitching.
2. Gimped edge could be colored by pressing them against a sponge saturated with ink.
3. If some component needs to be edge inked after stitching, then each piece has to ink individually with a felt pen, wax crayon or a small sponge.
4. Edge color should match the required specification.
5. In case of spray inking, spray gun should be check against cleaning and quantity of color to come out during spraying. Nozzle can be adjusted accordingly.

6. All the raw edge components are staked together and necessary color/ink is applied with the help of sponge, knotted cloth piece on wooden stick or by spray.

7. Spray gun is used for quick and quality edge inking. The stake of the raw edge components is pressed under the pneumatic pressure and spraying is done accordingly by rotating the workstation.

Self-Check 2	***Written Test***

Instructions: Write all your answers in the provided answer sheet on page

(Total point 10)

Directions: Answer all the questions listed below.

Test I: Fill in the blanks:

1. ---------- the m/c when not in use.(point 1)
2. Do not make your own ----------(point 1)
3. Keep your fingers away from ----------.(point1)
4. Know your --------- (point 1)
5. In case of any accident, no matter how minor, inform your ----------.(point 1)

Information Sheet 3_ Checking machines functionality

This Module aims at the development of skills, attitudes and knowledge to split, stamp, mark, skive and fold leather components by using a splitting, skiving and folding machine. It covers the initial part of production, where all upper cut components are prepared for closing operations. This makes upper closing easy and more convenient. Depending upon the space productivity and availability the preparation section may be found in:

- Clicking/Cutting room
- Independent section
- In closing room.

The cut component comes from the clicking room in batches or lots, normally in multiples of 10 or 12 pairs. Along with the lot, there is usually a work ticket, which contains details related to the particular batch is to be made. For example, for the closing room, it would state- Article No, size; lot No, color and type of thread, size and type of eyelets or elastics, etc. Sometimes buyer's name is also specified in the detail given. The preparation department has its own advantages and disadvantages to be with the cutting room, independent section and with upper closing department.

CHECKING

The first operation is usually to check the cut components against the work tickets to ensure the availability of all components before feeding them in to the conveyer. This makes the consecutive operations convenient and eliminates any kind of discrepancies during various operations. The purpose of this operation is to help in continuous feeding and ensure the loading in time.

During checking, the checker must keep in mind against article No, batch No, lot No, sizes, No of upper components, No of lining components, quantity of pairs, color and any other specification provided by the customer. Responsible person is required for this job with a detailed knowledge of the various operation sequences of production. He makes the record of each feed lot of cut component and maintains the continuity in feeding.

Recording at different production levels eases the traceability and helps in better planning.

PREPARATION PROCESS includes sorting of cut component in order to make batches and lots as per the order break up and delivery schedule. Splitting is done against uneven thickness with the leather material as per specification. Fusing is a process of reinforcing the weaker and soft material against the lasting pull and shape retention. This process is also known as interlining attaching. Different types of interlinings are used as per the requirement and need of the shoe material. Mostly this operation is done on costly and high quality shoes.

Edge color is done on the raw edges left in the component as per specification given. During edge color, care should be taken against sipping or flowing of color on the grain or flesh side of the component. Marking is the process to identify the fitting places for other components like eyelets, ornaments, decoration stitch and cording. Stamping is done against the size,

article No, batch No, etc. Skiving is necessary for the appearance and comfort of final shoe. Screen-printing is done for decoration purpose.

Self-Check 3	***Written Test***

Instructions: **Write all your answers in the provided answer sheet on page**

Directions: **Answer all the questions listed below.**

(Total marks 8)

Test I: Fill in the blanks:

1. Preparation process may be found in ----------. (Mark 1)
2. The cut component comes from the clicking room in batches or lots. (Mark 1)
3. The purpose of ---------- is to help in continuous feeding and ensure the loading in time. (Mark 1)
4. Edge color is done on the ---------- left in the component as per specification given. (Mark 1)
5. ---------- includes sorting of cut component in order to make batches and lots as per the order break up and delivery schedule. (Mark 1)
6. ---------- is a process of reinforcing the weaker and soft material against the lasting pull and shape retention. (Mark 1)
7. ---------- is done for decoration purpose. (Mark 1)

8. ---------- is the process to identify the fitting places for other components like eyelets, ornaments, decoration stitch and cording.
(Mark 1)

Information Sheet 5_ Starting up and shutting down Machines following standard procedure

Starting up and shutting down procedures of pre operation machines

Starting up and shutting down the skiving machine

1. Position the guide and Pressure foot.
2. Switch on the m/c.
3. Depress the treadle.
4. Stack your work on the bench top to the left of the m/c.
5. Feed in the leather with the grain side up.
6. Keep the leather to the guide.
7. Run straight through.
8. Place the skived piece of leather upside down on the m/c bed.
9. Pick up the next piece and skive as before.
10. After completing your work, switch off the m/c.

Starting up and shutting down the splitting machine

1. Set the correct thickness before starting splitting of components
2. Match the split component with the thickness gauge once a day.
3. Do not split leather in layers.
4. Clean your work place after completing your work.
5. Empty the leather waste in to waste bin only.
6. After completing your work, switch off the m/c.

Starting up and shutting down the stamping machine

1. Set the digits as per article no., batch no, lot no, sizes and any other specification provided by the customer while stamping on the components
2. Match the stamped component with the sample.
3. Do not split leather in layers.
4. Check for the temperature of the heated number plate / die (70-80 degree Celsius).
5. Clean your work place after completing your work.
6. Empty printing foils waste in to waste bin only.
7. Place each component on machine platform carefully with specified margin/place on the components.
8. Keep the hands away from the heated number plate/die

Starting up and shutting down the interlining attachment machine:

The machine must be used in the following way:

- Fill the cement and the catalyst tank, if necessary;
- Open the faucet placed on the filter group in order to allow passage of air;
- Check that the tank pressure regulator is gauged between 0.5 and 1bar;
- Visually check that the cement flows from the tank to the pistol through the feeding pipe;
- Adjust the pistol

Machine stopping:

To stop the machine proceeds as follows:

1) Check that the working phase has been finished
2) Close the air tap on the filter – reducer group
3) Stop the exhaust fans

Starting up and shutting down the skiving machine

11. Position the guide and Pressure foot.
12. Switch on the m/c.
13. Depress the treadle.
14. Stack your work on the bench top to the left of the m/c.

15. Feed in the leather with the grain side up.
16. Keep the leather to the guide.
17. Run straight through.
18. Place the skived piece of leather upside down on the m/c bed.
19. Pick up the next piece and skive as before.
20. After completing your work, switch off the m/c.

Information Sheet 6_ Band knife/ bell knife sharpening procedures

Sharpening

machine is equipped with special long-life wheels which must not be dressed under any circumstances.

They must only be cleaned with the special stick supplied every time that the blade is replaced.

The blade sharpening operation is undertaken by operating the knob (1-). It must be rotated for half a turn in an anti- clockwise direction. Once sharpening will take place on carrying out the above operation.

Information Sheet 7_ Checking and replacing Stamping foil as required

Setting or substitution of the printing foil

In order to set the printing foil, operate as follows:

1. Unscrew the blocking knob and take away the fixing spring from the support pivot from the device that bears the foil;
2. Take away the anterior flange from the support pivot of the device that bears the foil;
3. Unroll the beginning of the printing foil making it do the way indicated in the picture, going on the device to protect hands;
4. In order to be close to the transport of the printing foil take up manually the pressure roll placed on the tractor pulley and going over the strength of the spring of return and dispose the foil under the pressure roll itself.

Transport of the printing foil

The transport of the foil is done after every printing during the phase of the going up of the printing group, thanks to the angular rotation done by the tractor pulley made of rubber and action by a control connecting rod.

A device with free wheel allows the rotation of the tractor pulley only in the direction on going on.

Key:

A- Knob, bushing and spring for the fixing of the flange
B- Flange that guides and contains the foil
C- Printing foil
D- Pressure roll
E- Pulley tractor
F- Articulated rod for the transport of the foil.

Adjusting of the transport of the printing foil

In order to make the adjusting of the transport of the printing foil, work as follows:

Unscrew the blocking lever and move the pivot placed on the side of the rod for the control on the hole placed in the adjusting lever for the transport, according to the dimensions of the die;

After having done the adjusting close again the blocking lever.

Adjusting of the tension of the printing foil

The tension of the printing foil is determined by the pressure exerted by the screw placed in the same axis to the pivot that bears the spool on the anterior flange.

The adjusting of the tension is done varying the charge on the spring by the pressure bushing.

Position of the micro switches

- ✓ Micro switch that is placed in correspondence to the plastic door for the protection of the printing group.
- ✓ If the protection door is not going down, the printing group does not go down. Once lowered, the bulkhead is kept in the right position by a closing magnet.

Micro switch that controls the going down of the printing group

Key:

A. Micro security of the bulkhead
B. Device to protect hands
C. Cover for the pedal
D. Fixed pivot for the adjusting of the device to protect hands
E. Fixed pivot for the auctioning of the micro
F. Micro switch that controls the going down of the printing group

1. The metallic die stamp or engraved wheels containing numbers must be adjusted according to the shoe last number, date of fabrication, name of the firm and style.
2. Adjust the die temperature
3. And pressure according to the type of material

We have a separate article written on “Rotary Hot Stamp Process”.
It is available on request.

Metallic Foils - For Plastics, Leathers & Fabrics

It is always advisable to check availability of stock
Grade EFF
Available in shades 000, 001, 006, 017,
029, 036, 241, 257, 260, 261, 262, 266,
267, 268, 269, 299, 308
Medium to Tight Release Foil
Suitable for ‘tipping’ conventional plastics such as styrene and PVC.
Temperature range 110 - 130 degrees C.
Grade 591
Available in shades 000, 001
Medium Release Foil
Suitable for PVC, leather and some fabrics.
Temperature range 110 - 125 degrees C.
Grade 595
Available in shades 000, 001, 011
Easy Release Foil
Suitable for PVC, leather and some fabrics.
Temperature range 110 - 125 degrees C.
Grade 100
Available in shade 000
Grade 101
Available in shade 001

Medium Release Foil
An extremely flexible foil suitable for most plastics including polypropylene, polyethylene, ABS and styrene. Excellent high temperature performance.
Temperature range 130 - 150 degrees C.
Grade 140 000
Available in shade 000
Grade 140 300
Available in a shade similar to 001
Easy Release Foil
Suitable for parchment, leather, nylon polymer, grained book cloth, satin ribbons and all types of papers and boards for medium to large detail.
Temperature range 100 - 130 degrees C.
Grade M 160 Series
Available in shade 000 and a shade
similar to 029
Medium Release Foil
Very flexible foil for rigid plastics such as ABS and styrene, but especially for polypropylene and polyethylene. High resistance to diluted acids. Fine to medium coverage, metal die.
Temperature range 120 - 200 degrees C.
Grade YS
Available in shades 000, 001
Medium Release Foil
Suitable for some PVC and polyolefin's.
Temperature range 110 - 130 degrees C.
Grade PS GG2
Available in a shade similar to 001
Medium Release Foil
Very universal quality for the plastics industry. Suitable for use on PS, PVC, ABS, SAN and PET. Excellent for 'tipping' eg. Shampoo bottles.
Temperature range 110 - 200 degrees C.
Grade PT SLI
Available in shade 000
Tight Release Foil
Suitable for roll on application using metal or rubber dies for blown bottles, PE and PP .
Temperature range 120 - 200 degrees C.

Self-Check 9	***Written Test***

Instructions: Write all your answers in the provided answer sheet on page

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test: Very Short Answer Questions

(Total point- 5)

1.Write the **Position of the micro switches**(1point)
2.Write the Order to set the printing foil, (1point)

Information Sheet 9_ Lubricating, cleaning and maintaining machineries

Information Sheet 10_ Setup Work station applying the Ergonomics of work environment

Ergonomics: - is the study of the relationship between the worker and the working environment.
Work plays a central role in people's lives, since most workers spend at least eight hours day in the workplace, whether it is on a plantation, in an office, factory etc. therefore, work environments should be safe and healthy. Yet this is not the case for many workers. Every day workers all over the world is faced with a multitude of health hazards, such as:

- Dust,
- Gases;
- Noise;
- Vibration;
- Extreme temperatures.

Unfortunately some employers assume little responsibility for the protection of workers health and safety. In fact, some employers do not even know that they have the moral and often legal responsibility to protect workers. As a result of the hazard and lack of attention given to health and safety, work related accidents and diseased are common in all parts of the world. The main health & Safety hazards can be classified as:

- Due to machine and equipment
- Due to working environments and conditions.

1. **Due to machine and equipment:**

Many workers suffer injuries and disease that result from manual works and the increased mechanization of work. One the result of manual work, as well as the increase in mechanization, is that more and more workers are suffering from backaches, neck aches, sore wrists, arms and legs, and eyestrain.
To avoid this we should improve poor working conditions e.g. prevent bad design from being built into a job if applied when a job, tools or workstation are set up.
Workers are often forced to adapt themselves to poor working condition which is not good as this causes loss of productivity.

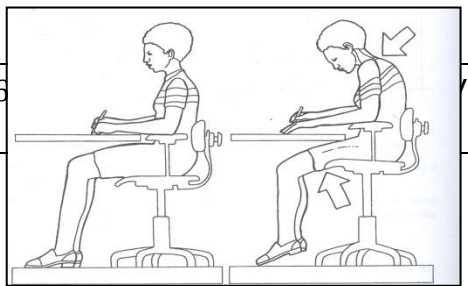
Some of the important factors are discussed here:

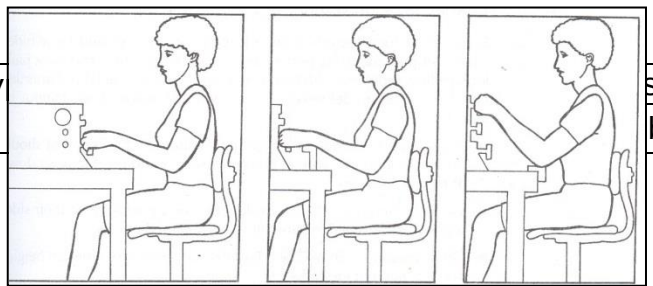
Workstation:

- The workstation is the place a worker occupies when performing a job.
- A well designed workstation is important for preventing disease related to poor working conditions, as well as for ensuring work is productive.
- Every workstation should be designed with both the worker and the task in mind.
- A properly designed workstation should allow the worker to maintain a correct and comfortable body posture.

Sitting: (skiving)

A sitting job like skiving should be designed so that the worker does not have to stretch or twist unnecessarily to reach work area. On some jobs arm supports and rests may reduce arm fatigue. For example –





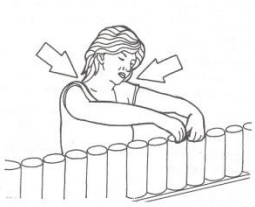
The working position should be as comfortable as possible. The arrows indicate areas that need to be improved to prevent potential injuries from developing. To improve the sitting position for the worker on the right, the chair height should be lowered, tilted slightly forward and the worker should be provided with a footrest.

The job should be designed to allow the workers to keep the arms low and the elbows close to body.

Standing (splitting, stamping and Inter-lining attachment)

- Standing for long periods of time to perform a job should be avoided wherever possible.
- Long periods of standing works station can cause health problems. For example:

A chair, footrest, a mat to stand on, and an adjustable work surface are essential components for a standing workstation.



2. Due to working environments and conditions:

Workplace environment and conditions influence workers performance to a great extent.

Temperature & humidity, noise and quality of light are some key conditions. These can have an effect safety and health of workers and can be improved simple means.

❖ **Temperature & humidity:**

Good ventilation and air circulation in the work area and insulation of buildings against outside health and cold will contribute to pleasant temperature and reduction of humidity. At eh same time, overall ventilation also reduces the concentration of airborne contaminant.
Ideally factors such as direction of wind and facing northern direction for sunshine should be always considered when planning the construction of a tannery.

- Use natural ventilation and air circulation to achieve low cost overall ventilation first, taking advantage of horizontal air movement around and though buildings or the tendency of hot air to rise. Simple modifications such as removal of separating walls or increase of wall opening will improve the natural airflow.
- Install fans, where natural air ventilation and circulation are not sufficient.

Insulation against heat and cold
Before resorting to expensive equipment to control temperature, be aware that heat and cold are also caused by outside climatic conditions. Heat and cold may get inside the factory directly through opening such as windows, doors, gaps, skylights, or indirectly though conduction through walls and roots. While ventilation is one way to remove heat from the work place, also consider to:

- Improving the heat reflection of walls and roofs by plastering or whitewashing;
- Improving the insulation of the roof by using insulating material or double layer roof;
- Using radiant heat from machines and process to warm the work place in cold climate;
- Using shades for the walls opening to deflect heat from direct sun shine;

❖ **Quality of light**

Poor lighting leads to low productivity and poor quality, as workers will start suffering from eye strain, fatigue and headache. Better lighting does not mean that more light bulbs have to be fixed in many cases, rearrangement of

existing lighting and proper maintenance and cleanliness of reflectors/fittings will result in improvements.

- Make full use of natural daylight by installing skylights or modifying size and location of window. Keeps window clean all the time. You save the electricity cost of artificial lighting.
- Paint callings and inner walls in lighter colors. This provides better reflection and distribution of existing light sources besides resulting in better visual condition and a pleasant work environment.
- Avoid direct and indirect glare, glare can distract the workers concentration, possibly resulting in poorer quality or even accidents.

❖ **Noise:**

Not all sound is noise –noise is sound that people do not like. Noise can be annoying and it can interfere with your ability to work by causing stress and disturbing your concentration. Noise can cause accident by interfering with communication and warning signals. Noise can cause chronic health problems. Noise can also cause you to lose your hearing. Hearing loss from exposure to noise in the workplace is one of the most common of all industrial diseases. Workers can be exposed to high noise level in workplaces as varied as construction industries, foundries and textile industries. Short-term exposure to excessive nose can cause temporary hearing loss, lasting from a few seconds to a few days. Exposure to noise over a long period of time can cause permanent hearing loss. Hearing loss that occurs over time is not always easy to recognize and unfortunately, most workers do not realize they are going deaf until their hearing is permanently damaged. Industrial noise exposure can be controlled – often for minimal cost and without technical difficulty. The goal in controlling industrial noise is to eliminate or reduce the noise at the source producing it.
The health effect of noise exposure depends on the level of the noise and the length of the exposure.

1. **Temporary hearing loss:**

After spending a short time in a noisy workplace, you may have noticed that you cannot hear very well and you have a ringing in your ears. This condition is called temporary threshold shift. The ringing and the feeling of deafness normally war off after you have been away from the noise for the short time. However, the longer you are exposed to the noise, the longer it takes several hours for a workers may find it difficult to hear what other people are saying or may want the radio or television on louder that the rest of the family.
Suspect hearing loss if a person complains that he or she cannot hear something when you can.

2. Permanent hearing loss:

Eventually, after you have been exposed to excessive noise for too long, uour ears do not recover and the hearing loss becomes permanent. Permanent hearing loss can never be repaired. This type of damage to the ear can be caused by long –term exposure to loud noise or, in some case, by short exposures to very loud noises.

When a work begins to lose his or her hearing, he or she may first notice that normal talking unclear. Worker often adapt himself or herself to hearing loss produced by harmful noise at work.

It is important to be aware of science of hearing loss.

3. Other effects:

In addition to hearing loss, exposure to noise in the workplace can cause a variety of other problems, including chronic health problem for example:

- Decrease of coordination and concentration.
- Noise increases stress, which can lead to a number of health problems, including heart, stomach and nervous disorders. Noise is suspected of being one of the causes of heart disease and stomach ulcers.

Self-Check 10	***Written Test***

Instructions: Write all your answers in the provided answer sheet on page

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test: Very Short Answer Questions

(Total marks: - 5)

1. What is Ergonomics?
   (mark 1)

2. Mention two classifications of the main health & Safety hazards. (mark 1)

3. Classify prefabrication operations as sitting job. (mark 1)

4. What is the effect of poor lighting? (mark 1)

5. What is the health effect of noise exposure? (mark 1)

LG #45	LO#-3 **Conduct sample run**

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics – Obtaining material for sample run

- Running machines according to standard procedures
- Testing machine outputs in accordance with quality standard
- Organizing machine outputs to interpret test results

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- Materials for sample run are obtained following workplace procedure.
- Machines are run according to specified sample products and following standard procedures.
- Machine outputs are tested in accordance with company procedures to ensure required standards of quality are met
- Machine outputs are organized to interpret test results according to company procedures

Learning Instructions:

Learning Activities

1.Read the specific objectives of this Learning Guide.

2.Read the information written in the “Information Sheet 1”.

3.Accomplish the “Self-check 1”

3If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if 4.your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #2.

5.Submit your accomplished Self-check. This will form part of your training portfolio.

6.Read the information written in the “Information Sheets 2”.

7.Accomplish the “Self-check 2”

8.If you earned a satisfactory evaluation proceed to “Information Sheet 3”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #6.

9.Read the information written in the “Information Sheet 3”.

10.Accomplish the “Self-check 3”.

11.If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if

your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #9.

Information Sheet 1_Obtaining material for sample run

A workplace procedure is a step by step description of how some job function is to be done. It is most useful if written in clear language and readily available to those who perform that function. However, some workplace procedures are not written down and are simply passed by word of mouth from older to younger employees.

Procedure of moving the material

SPLITTING
STAMPING
MARKING
SKVIING
INTERLINING ATTACHMENT

SPLITTING

The process of dividing components horizontally into two or more layers is known as splitting. There are different types of splitting machines are available in footwear industry as per their requirements. This process is done to obtain desired thickness of leather. Leather being a natural material is never has same thickness all over the hide or skin. That is why the splitting process came into existence. Before the introduction of splitting machines, a hide was reduced in thickness by the process called shaving during tanning. The modern splitting machine has a flexible knife in the form of an endless band moving at high speed over a pair of large pulleys. When the leather to

be split is placed on the bed of the machine and pushed forward, it is gripped by pairs of rollers and propelled forward in such a manner that the band knife splits it according to set gauge adjusted. The propelling rollers are made up of a large number of small ring rolls with rubber centers, which allow for initial variations in the thickness of the hide. The knife can be adjusted to slice through the thickness of the hide at any desired depth below the grain surface by adjusting the level of the rollers. While the machine is in operation, grinders attached on its underside automatically sharpen the band knife.

STAMPING

When a person buys a pair of shoes, how do they know what size or fitting of the shoes is?

The size might be stamped or moulded on the sole, it may say on the in sock stuck at the heel of the shoe – but almost certainly the size will be stamped somewhere on the upper. The usual places are either the inside of the quarters or on the backside of the tongue. Whichever is chosen, it must be as per specification given, yet not distract from the appearance of the upper.

The details are usually stamped on the lining using heated metal dies set in a stamping machine. The attached dies are pressed down on a foil ribbon, which transfers the coating of the ribbon onto the component. Sometimes some material like Fur linings is impossible to stamp. So in this case, it is usual to stamp the details on a suitable material and either stick or stitch this with Fur lining in required place.

MARKING

In this operation, marks are put on the upper material to enable the operatives to position/fit the components together accurately before stitching. This enables the fitting operations easy and convenient during upper making. Stitch marking ensures for the position of any kind of fancy stitching to be done on upper and also helps in identifying the positions of eyelets, buckles, ornaments, punching etc. There are various methods of stitch marking available in footwear industry are in use according to their requirement and feasibility. The selection of the marking method depends on the production situation and resources available. This will also depends on the cost of marking resource, productivity and order quantity.

SKIVING

Skiving is the process of reduction of thickness of the material either from grain or flesh side of material in order to aid and eases the various closing operations at different levels. A layer of substance is removed under this process without hampering the existing strength of the material. When we join or attach two components together without any skiving, it doubles the substance and creates problems for next operations to perform during shoe making and cause discomfort to wearer. Hence the importance of skiving can be noticed and specified results could be achieved.

INTERLINING ATTACHMENT

The word fusing is used for fixing a sugar coated fabric to a particular material for reinforcing and strengthen purpose by fusing machine. Different kinds of material are used in shoe making and leather is rated best to make a comfortable and hygienic shoe. Leather being a natural material has fibrous structure, which can have loose flesh, soft feel and thin substance. To make a good presentable shoe out of this type of material, we need to have a special treatment called reinforcing or interlining attaching. This makes the upper component durable during production and provides better shape retention to

the finished shoe. In order to reinforce the concerned material, different kinds of reinforce material can be used according to their purpose, uses and benefits. Some of the material is as follows:

g. Thin leather pieces
h. Fabric
i. Sugar coated material
j. Pressure sensitive material (heat base)
k. Solvent base
l. Self adhesive nylon or cotton tapes

Self-Check 1	Written Test

Name: _____ Date: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 8.

Directions: Answer all the questions listed below.

TEST I: Match the words:

1. FUSING	1. process of reduction of thickness of the material either from grain or flesh side of material
2. SPLITTING	2. fixing a sugar coated fabric to a particular material for reinforcing and strengthen purpose
3. STAMPING	3. marks are put on the upper material to enable the operatives to position/fit the components together accurately before stitching
4. MARKING	4. The size might be stamped or moulded on the sole
5. SKIVIING	5. The process of dividing components horizontally into two or more layers

Information Sheet 2_ Running machines according to standard procedures

Standard operating procedures establish the prescribed way to perform a task. By writing out the technique and equipment to be used, you ensure that everyone does the task the same way, with the goal of achieving uniform results. Having a written standard operating procedure gives you a document to refer to if anyone has questions.

Sample products: - are types of product which are used as samples or models their function is to use as a reference for the production process.

So in the prefabrication operations machines should be operated according to these specified sample products and following the standard procedures.

1. SPLITTING

- Check the specification/standard

It is important to check the specification of the product that is going to be split. The specification contains the thickness of the material, the color, and soon.

- Set machine for the required thickness

After checking the specification machine set up or adjustment is followed:

- Adjust the gap between the upper roller and the band knife according to the product specification or material thickness.

- When the band knife is blunt grind it using the sharpening button which is connected to the sharpening stone.
- Before splitting process leather thickness must be measured using thickness measuring gauge.

➢ Sample run

It is practical test of something new or unknown to discover its effectiveness. Sample run is exercise that puts a machine, process, or system through a series of actions under actual or simulated environmental/operating conditions to ascertain its current status or to verify its reliability or suitability to task. In this case it is to put a trial in to the machine if it works according to the adjustment or specification.

- Check thickness by thickness measuring machine or gauge

After splitting the thickness of the product must be checked or compared to the specification using thickness measuring gauge.

Stamping

1. Check stamping details

Stamping details are obtained from the product specification and this specification contains the following points:

- Article number
- Size
- Pair number
- Date

2.Stamp color

Some applications that require the end-user to readily identify the code may add color or decoration to enhance the indented surface. This particular application requires the use of a Hot Stamping Press with foil. The foil is used as a transfer medium for adding color to the sequence. Most of the time the type of color used is golden or silver ribbon foil or golden foil that enhances the appearance of the stamped details.

3.Set temperature & pressure

Acting on the knob of thermo regulator you set the desired value of temperature for the heating of the metal dies set in a stamping machine. Never set the temperature more than 150^{o}c on the electric resistance for the heating of the counter.

4.Description of the cycle of running

The sequence of running is the following:

1.Action the MAIN SWITCH placed on the panel that bears the electric controls.

2.Push the button START.

3.Set on the electronic timer

4.Temperatureof the electric resistance the desired value of temperature.

5.When the electric resistance has reached the set temperature, the light on the control panel turns off.

6.Set the object to print on the working plan.

7.Push the control pedal.

Following to the action of a lever device you have the sequence of work:

- The device to protect hands goes down to the working plan;

- You push the micro switch that controls the going down of the printing group by a pivot;
- When the printing time set on the timer has passed, the printing group begins its going up.

  During the going up phase, you have the transport of the printing foil. The transport of the printing foil allows submitting to the die a new portion of printing foil.

8.Check the clearness of the printing. If this is not perfect, you can correct it in the following ways:

- Reducing or increasing the pressure of work by a pressure reducer placed on the side of the bearing column, paying attention of not go over the value of 6 bar;
- Reducing or increasing the temperature of the die acting on the electronic thermo regulator; the value of the temperature of the counter will depend from the kind of printing foil used.

  Changing the printing time by the timer **PRINTING TIME** placed on the panel of electric controls.

Key:

A- Device to protect hands

B- Control pedal

C- Lever that controls the sequence of work

Note:-

- In any moments, in order to stop immediately the sequence of work, push the button EMERGENCY made like a red mushroom on a yellow landscape placed in correspondence of the printing cylinder in front of the eyes of the operator; such a button takes away all the feeding to all the control (the only feed circuits are the ones of the OPTICAL FLOODLIGHT FOR CENTERING and of the heating resistance).

  In order to restore the running conditions, turn the red button made like a mushroom in the sense as the pointers turn: the device that keeps the button will loose and the same will return automatically to the position of rest.

  Push the button START.

  The machine will start a new printing cycle only after the pressure of the pedal.

- In order to safeguard the health of the operator, it is absolutely forbidden to take away or to tamper with the protections set by the builder during the running of the machine.

- The temperature of the counter is controlled by a feeder that automatically stops the heating when it reaches the set temperature and it restores it when the temperature of the counter lowers.

Acting on the knob of thermo regulator you set the desired value of temperature for the heating of the metal dies set in a stamping machine.

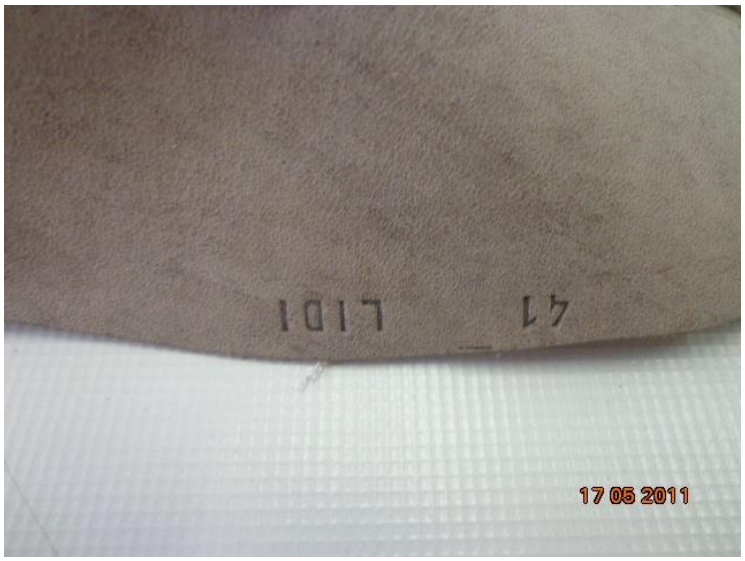
Never set the temperature more than 150^{o}c on the electric resistance for the heating of the counter.

Stamp

Then stamping is done by pressing the paddle of the stamping machine appropriately.

Check the stamping quality

Finally the stamping quality must be checked. Quality means if the stamping detail is according to the specification and if the stamp is visible.



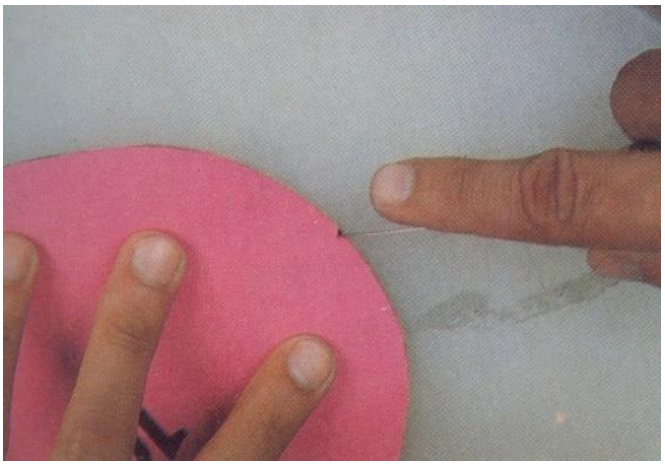
MARKING

Check marking patterns

It is to check the patterns that are used to mark on the upper materials. In this case checking patterns they are as per the specification is important.

Check pickers and notches

It is to check the notches and pickers on the pattern if they are as per the specification.

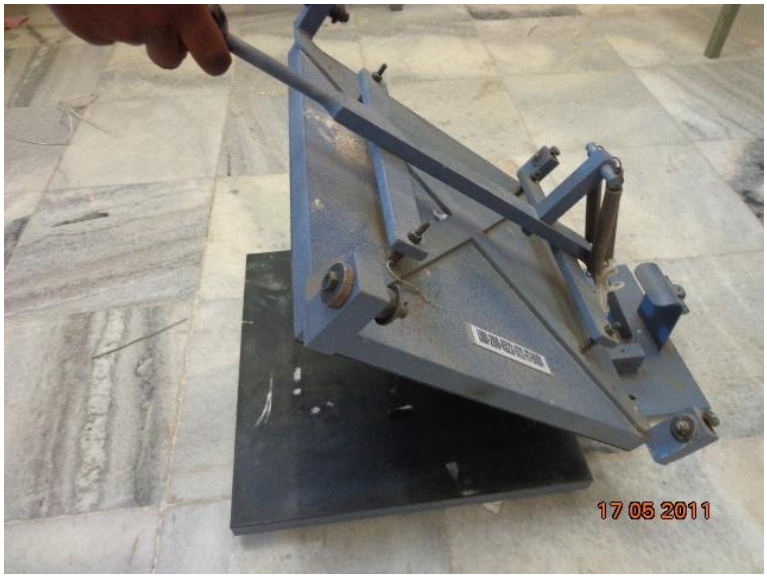


Marking

Then after checking the marking operation using the marking patterns is followed.

Check with master patterns

Finally the marking must be checked using the master patterns if it is as per the specification.



SKIVIING

Check specifications/standards

It is important to check the specification of the product that is going to be skived. The specification contains the width, thickness, and type of skive of the material, the color, and soon.

Check pressure foot

There are various kinds of pressure foot so checking the pressure foot if it is as per the specification is very important.

Check guide

Skiving guide is fixed near the pressure foot and used to determine the skiving width during skiving. Also checking the guide and adjusting is important.

Sample run

After checking all the above points, to put a trial in to the machine if it works according to specification is important.

Check skiving with show board

Finally the skiving quality must be checked. Quality means if the skive is according to the specification.

Inter-lining attachment:

Check specifications/standards

To make a good presentable shoe out of this type of material, we need to have a special treatment called reinforcing or interlining attaching. So it is important to check the specification of the material for the interlining attaching. The specification can be for example the shape retention.

Set temperature and pressure

After checking, there is setting temperature and pressure. Make sure that the temperature and dwell time is correct.

Place inter-lining

Interlining or reinforcement material must be the same to the specification and also checking for correct adhesion and placement of reinforcement is very important. So Interlining or reinforcement should be:

- Compatible with corresponding material.
- Woven (stretch) reinforcement material should be selected for fixing under stretching areas (lasting pulls) of upper.
- Non-woven reinforcement material should be selected for fixing under punching and perforated areas like eyelets and brogue punches.
- Braided reinforcement (nylon) material should be used for fixing under folding and top lines.

Press

Press under the heat.

Check attachment

Finally the interlining attaching must be checked if placement of reinforcement is correct and if the specification is fulfilled.

Check pressure:

Pressure of the machine should be correct according to the standard. Pressure in the machine should be checked time to time.

Operating button:

These buttons are used for operating the machine. There are two green buttons in the machine.

Self-Check 2	***Written Test***

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 11.

Directions: Answer all the questions listed below.

1.What should be checked while doing the splitting on the components?(Mark 1)

2.While doing the marking what care should be taken?(Mark 1)

3.How much temperature should be in the stamping machine?(Mark 1)

4.Before starting the splitting from which we should measure the thickness of the components.(Mark 1)

Information Sheet 3_ Testing machine outputs in accordance with quality standard

Quality standard is a *document established by agreement and approved by a recognized body that provides for common and repeated use.*

- International standard: a standard adopted by an international standardization organization
- European standard: a standard adopted by a European standardization body
- National standard: a standard adopted by a national standardization body and made available to the public.

In order to meet this quality standards machine outputs should be tested in accordance with the company procedures.

Using a standard test method, perhaps published by a respected standards organization, is a good place to start. Sometimes it is more useful to modify an existing test method or to develop a new one. Again, documentation and full disclosure are very necessary.

A well-written test method is important. However, even more important is choosing a method of measuring the correct property or characteristic. Not all tests and measurements are equally useful: usually a test result is used to predict or imply suitability for a certain purpose. For example, if a manufactured item has several components.

QUALITY

1. Quality is the totality of features and characteristic of a product or a service
   that affect its ability to satisfy the stated or implied needs of a customer.

2. Quality is not absolute. It is relative to other goods and services.

3. Quality changes with time and customers perceptions.

4. Quality cannot be achieved by inspection only. It can only be improved be
   small continuous product and process improvements.

5. Quality consistency requires us to concentrate on the process rather than on the product alone.

6. Good quality requires a clear understanding of Design principles that 80% of quality problems are attributable to management. Workers are NOT the real problems.

7. Quality brings customer loyalty.

8. Commitment to quality must begin at the top of the organization.

9. There should be a clear company vision for quality and it business value.
There is no point having a quality policy and yet shipping substandard material as a calculated risk.

10. It is important to have a clear documented company policy on quality and ensure that this is available to all employees.

11. Team work is the key to quality.

12. Japanese companies give full authority to workers when it comes to quality.
A worker can thus stop a production line if there is a serious quality problem.
In such cases the entire top management team will be on the shop floor in minutes and will leave only when the problem is solved.

13. Good quality will automatically result in productivity improvements.

14. The policy should be to Do it right the first time.

15. Companies must invest in training, special purpose machines, design and research to improve quality.

16. An open mind is essential to build a quality culture.

17. In a good organization each error is part of training and learning. The key to success is to ensure that a mistake is NOT repeated again in the organization.

18. Companies must recognize that quality is the key to survival in business.

KEYS TO A GOOD QUALITY SYSTEM

1. Everyone must know what to check and how to check
2. List major and minor defects and display the critical operations.
3. Check all inputs materials for quality/quantity.
4. Make specifications clear to the supplier at the time of ordering material.
5. Do not dilute your standards.
6. When a mistake occurs look for corrective and preventive action. Corrective Action - Immediate action taken to solve problem. Preventive action - Steps taken to prevent a recurrence of the problem.
7. Keep a defect file as a learning system.
8. Clearly fix responsibility for quality in each department.
9. Quality cannot be controlled at the end of line. It must be built into the system.
10. Continuous improvement in small steps in the key to success.
10. Have a good monitoring system.
11. Good housekeeping is important for good quality.

Quality checking of the machine outputs:

Check thickness by thickness measuring machine or gauge

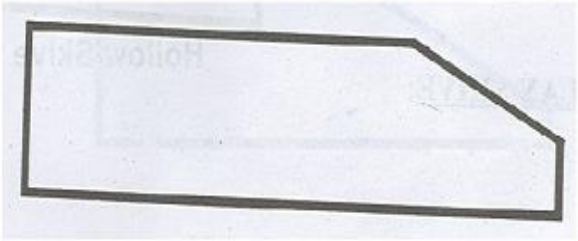
After splitting the thickness of the product must be checked or compared to the specification using thickness measuring gauge.

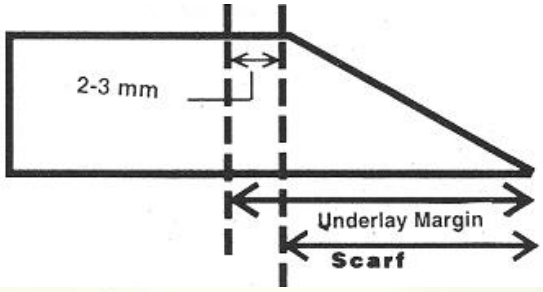
Check marked component with the master pattern

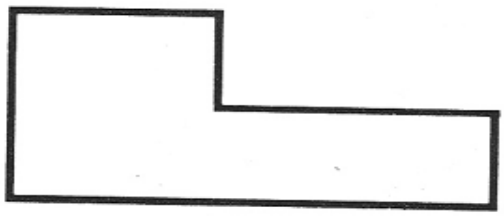
After marking, component should be checked with the master pattern.

Check marking quality

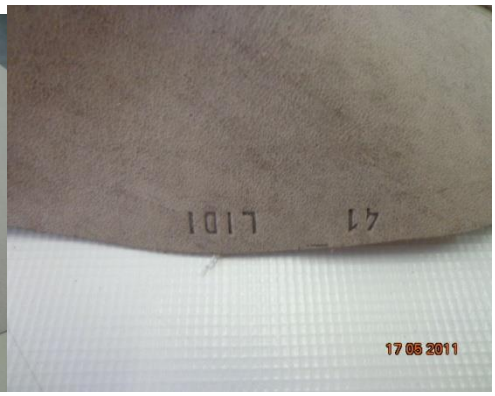
Check raw edge, Underlay and folding skiving Depth and width:




2-3 mm
Underlay Margin
Scarf



Check the interlining component quality



Check stamping quality

Self-Check 3	*Written Test*

Name: _____ Date: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 14.

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

1. What is quality?
   (1 point)

2. What is standard? (1 point)

3. Why machine outputs should be tested in accordance with the company procedures?
   (1 point)

Information Sheet 4_ Organizing machine outputs to interpret the test results.

It is necessary for every organization to standardize all its processes and procedures. This way, it is able to ensure uniformity for all tasks. Each employee in the organization performs a task in the same manner as another. The company should document all the procedures and maintain both hard and soft copies of standard operating procedures.

By specifying the details and procedures to be followed in regular work activities, occupational procedural documents ensure consistent results and safety compliance. So it is use full to organize and document machine outputs and this will provide an understanding if the test results are according to company procedure.

Company procedure for skiving:

21. Position the guide and Pressure foot.
22. Switch on the m/c.
23. Depress the treadle.
24. Stack your work on the bench top to the left of the m/c.
25. Feed in the leather with the grain side up.
26. Keep the leather to the guide.
27. Run straight through.
28. Place the skived piece of leather upside down on the m/c bed.
29. Pick up the next piece and skive as before.
30. After completing your work, switch off the m/c.

The test result of skived components should be according to the above company procedure.

Company procedure for splitting:

9. Set the correct thickness before starting splitting of components

10. Match the split component with the thickness gauge once a day.

11. Do not split leather in layers.

12. Clean your work place after completing your work.

13. Empty the leather waste in to waste bin only.

14. After completing your work, switch off the m/c.

The test result of splitted components should be according to the above company procedure.

Company procedure for stamping:

15. Set the digits as per article no., batch no, lot no, sizes and any other specification provided by the customer while stamping on the components

16. Match the stamped component with the sample.

17. Do not split leather in layers.

18. Check for the temperature of the heated number plate / die (70-80 degree Celsius).

19. Clean your work place after completing your work.

20. Empty printing foils waste in to waste bin only.
21. Place each component on machine platform carefully with specified margin/place on the components.
22. Keep the hands away from the heated number plate/die

The test result of stamped components should be according to the above company procedure.

Company procedure for interlining attachment:

12. Match the attached interlining components with the sample.
13. Check for the temperature of the machine.
14. The temperatures must be kept constant, with minimal fluctuations throughout the day.
15. Clean your work place after completing your work.
16. Place each component on machine platform carefully with specified margin/place on the components.
17. Keep the hands away from the heated plate
18. In case of heat activated reinforcement is used; make sure that the temperature and dwell time is correct. Check for correct adhesion and placement of reinforcement. Use an electronic thermometer, melting crayons or temperature sensitive papers. Do not rely on the temperature gauge and timer fixed when carrying out these checks.
19. Ensure for stitching over reinforcement.
20. Reinforcement fixing should be avoided over lasting margins (especially in cement lasting), as it hinders the pasting operation during lasting.
21. Non-woven reinforcement material should be used under perforations.
22. Woven or knitted reinforcement material should be used all around lasting pulls.

The test result of interlining attached components should be according to the above company procedure.

Company procedure for marking:

8. Edge inking could be carried out by holding the components with a clamp and then Colorings them either by brush/sponge/spraying (For spraying, a spray booth is required). This must be done before stitching.
9. Gimped edge could be colored by pressing them against a sponge saturated with ink.
10. If some component needs to be edge inked after stitching, then each piece has to ink individually with a felt pen, wax crayon or a small sponge.
11. Edge color should match the required specification.
12. In case of spray inking, spray gun should be check against cleaning and quantity of color to come out during spraying. Nozzle can be adjusted accordingly.
13. All the raw edge components are staked together and necessary color/ink is applied with the help of sponge, knotted cloth piece on wooden stick or by spray.
14. Spray gun is used for quick and quality edge inking. The stake of the raw edge components is pressed under the pneumatic pressure and spraying is done accordingly by rotating the workstation.

The test result of marked components should be according to the above company procedure.

Self-Check 4	***Written Test***

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 17.

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

A, Why is it necessary to standardize processes and procedures? (1 point)

B,What is the advantage of organizing and documenting machine outputs? (1 point)

LG #46	LO#4Adjust machine settings

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Importance of machine adjustment in relation to product specification.

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- Interpret test results to determine machine adjustment requirements.
- Assess adjustment changes in accordance with product and machine specifications.
- Report availability of the newly setup machine to concerned personnel.

Learning Instructions:

Read the specific objectives of this Learning Guide

1.Read the specific objectives of this Learning Guide.

2.Read the information written in the “Information Sheet 1”.

3.Accomplish the “Self-check 1” .

4’If you earned a satisfactory evaluation proceed to “information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #2.

5.Submit your accomplished “Self-check 3” This will form part of your training portfolio.

6.Request your teacher to observe your demonstration of the exercises and give you feedback

Information Sheet 1_ Organizing machine outputs to interpret the test results

It is necessary for every organization to standardize all its processes and procedures. This way, it is able to ensure uniformity for all tasks. Each employee in the organization performs a task in the same manner as another. The company should document all the procedures and maintain both hard and soft copies of standard operating procedures.

By specifying the details and procedures to be followed in regular work activities, occupational procedural documents ensure consistent results and safety compliance. So it is use full to organize and document machine outputs and this will provide an understanding if the test results are according to company procedure.

Company procedure for skiving:

31. Position the guide and Pressure foot.
32. Switch on the m/c.
33. Depress the treadle.
34. Stack your work on the bench top to the left of the m/c.
35. Feed in the leather with the grain side up.
36. Keep the leather to the guide.

37. Run straight through.
38. Place the skived piece of leather upside down on the m/c bed.
39. Pick up the next piece and skive as before.
40. After completing your work, switch off the m/c.

The test result of skived components should be according to the above company procedure.

Company procedure for splitting:

23. Set the correct thickness before starting splitting of components

24. Match the split component with the thickness gauge once a day.

25. Do not split leather in layers.

26. Clean your work place after completing your work.

27. Empty the leather waste in to waste bin only.

28. After completing your work, switch off the m/c.

The test result of splitted components should be according to the above company procedure.

Company procedure for stamping:

29. Set the digits as per article no., batch no, lot no, sizes and any other specification provided by the customer while stamping on the components

30. Match the stamped component with the sample.

31. Do not split leather in layers.

32. Check for the temperature of the heated number plate / die (70-80 degree Celsius).

33. Clean your work place after completing your work.

34. Empty printing foils waste in to waste bin only.

35. Place each component on machine platform carefully with specified margin/place on the components.

36. Keep the hands away from the heated number plate/die

The test result of stamped components should be according to the above company procedure.

Company procedure for interlining attachment:

23. Match the attached interlining components with the sample.
24. Check for the temperature of the machine.
25. The temperatures must be kept constant, with minimal fluctuations throughout the day.
26. Clean your work place after completing your work.
27. Place each component on machine platform carefully with specified margin/place on the components.
28. Keep the hands away from the heated plate
29. In case of heat activated reinforcement is used; make sure that the temperature and dwell time is correct. Check for correct adhesion and placement of reinforcement. Use an electronic thermometer, melting crayons or temperature sensitive papers. Do not rely on the temperature gauge and timer fixed when carrying out these checks.
30. Ensure for stitching over reinforcement.
31. Reinforcement fixing should be avoided over lasting margins (especially in cement lasting), as it hinders the pasting operation during lasting.
32. Non-woven reinforcement material should be used under perforations.
33. Woven or knitted reinforcement material should be used all around lasting pulls.

The test result of interlining attached components should be according to the above company procedure.

Company procedure for marking:

15. Edge inking could be carried out by holding the components with a clamp and then Colorings them either by brush/sponge/spraying (For spraying, a spray booth is required). This must be done before stitching.

16. Gimped edge could be colored by pressing them against a sponge saturated with ink.

17. If some component needs to be edge inked after stitching, then each piece has to ink individually with a felt pen, wax crayon or a small sponge.

18. Edge color should match the required specification.

19. In case of spray inking, spray gun should be check against cleaning and quantity of color to come out during spraying. Nozzle can be adjusted accordingly.

20. All the raw edge components are staked together and necessary color/ink is applied with the help of sponge, knotted cloth piece on wooden stick or by spray.

21. Spray gun is used for quick and quality edge inking. The stake of the raw edge components is pressed under the pneumatic pressure and spraying is done accordingly by rotating the workstation.

The test result of marked components should be according to the above company procedure.

Self-Check 1	***Written Test***

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 17.

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

A, Why is it necessary to standardize processes and procedures? (1 point)

B,What is the advantage of organizing and documenting machine outputs? (1 point)

Information Sheet 2- Assessing machine adjustment changes

Adjustments of skiving machine

- **Skiving machine**
- It is necessary to make some adjustments according to the skiving requirements.

1. When the desired skiving thick of the parts for leather goods varies, please adjust the height of pressure foot correspondingly. In the case of

even skiving and slope skiving adjust the pressure foot for the type of skive that is going to be used.

2. When it is necessary to change the feeding speed, please change the position of the v. belt on the belt pulley.
3. The clearance between the feed roller and the knife can be adjusted by turning the side knobs which is connected with the bottom feed roller assembly, which allows setting distance between knife and feed roller according to the thickness of the SCARF to be passes. Be sure that feed roller can't collide with knife.
4. When knife is blunt, turn the first knob clockwise which is connected with the sharpening stone and used to bring it near the bell knife for sharpening.
5. After the knife is damaged, move the knife axis leftwards slightly by turning the knob. The proper distance between the right surface of the pressure foot and the knife edge is 0.1-0.5mm.

The skiving machine makes the work easy and increases the productivity; hence it is suitable for mass production in footwear industry. This machine can be adjusted as per the required thickness and width to be skived. The different machine parts involved to make the required skiving are:

- Pressure Foot
- Bell Knife
- Bottom Feed Roller
- Sharpening stone
- Skiving guide
- Top pressure adjusting assembly
- Front adjusting Knobs
- Side adjusting Knobs
- Top lever

a) Guide adjustment (skiving guide)

Skiving guide is fixed near the pressure foot and used to determine the skiving width during skiving. It should be properly locked or unlocked during setting.

b) Pressure foot

There are various kinds of pressure foot exists in closing room to obtained different kinds of skiving. The main function of the pressure foot is to press the material and determined the width and angle of skiving been done. The material touching part of pressure foot should be smooth and fine as it always touches the grain surface of material and can damage the top surface in case of roughness or scratches on it. Such scratch may damage the grain layer of material and causes rejection and wastage to the company. The design and shape of the pressure foot vary according to the type of skiving required.

- Parallel shape of pressure foot is requires for folding skiving. (Parallel as per knife and roller).
- Flat fore part of pressure foot is requires for raw edge and underlay skiving. (Width and angle of skiving).
- Grooved in between the pressure foot is requires to make grooved skiving.
- Teflon material pressure foot or Teflon tape wrapped foot is used for skiving on synthetic material.

c) Feed rollers(Bottom feed roller)

Bottom feed roller helps in feeding the material by gripping the flesh side of the material without damaging it.

Adjustments

Feed roller is adjusted by using side adjusting knob connected with the bottom feed roller assembly. This side adjusting knob set the distance between knife and feed roller according to the thickness of the scarf to be passes. The minimum distance between the roller and the bell knife should not be set less than 0.5 mm. However, this distance may vary accordingly.

Types of feed rollers

There are different types of feed rollers available with machine mechanism for different types of material to be skived. Following are the types of rollers available to suit the particular material.

- Emery Roller
- Rubber Roller
- Metallic Roller

Emery Roller

This roller is made of emery stone and available in three types are **coarse, medium and fine emery**. The term coarse, medium and fine is used for the roller surface, which always comes in the contact of material during skiving.

The roller, which is having **coarse surface**, is used for thick, heavy and tight material to feed it under the pressure foot in order to have proper grip from beneath the material during skiving. This type of roller is used in medium and heavy-duty skiving machine.

The roller, which is having **medium surface**, is used for medium structure and thickness of material to feed it under the pressure foot in order to have proper grip from beneath the material during skiving. This type of roller is used in medium duty skiving machine.

The roller, which is having **fine surface**, is used for light and thin material to feed it under the pressure foot in order to have proper grip from beneath the material. This type of roller is used in light duty skiving machine.

Rubber Roller

This roller is made of rubber in order to incorporate with the very fine and thin material to be skived. According to experience it is noticed that mostly the feed roller damages the fine material from flesh side and leaves its impression on material surface during skiving. These impressions are quite visible from the grain side of material, which looks ugly and reduce the life of the material. Therefore rubber rollers are noticed most suitable for skiving fine, thin and delicate materials.

Metallic Roller

This roller is made of steel in order to incorporate with the thick and thermoplastic material to be skived. According to experience it is noticed that thermoplastic material leaves its adhesive after melting by the friction of knife, pressure foot and feed roller. The melted adhesive stick over the feed roller and during removing it damages the surface by leaving patches on it. These patches disturb the feed and hence metallic rollers are most suitable for skiving thermoplastic materials.

d) **Grinding stone(Sharpening stone)**

Sharpening stone is in round shape and used to sharpen the bell knife. The surface of the stone is very fine and also required dressing during sharpening the knife. It is fixed under the gearbox assembly and connected with side knob foe necessary movements. This movement includes bringing the stone towards the knife and send back after sharpening the knife.

e) Bell knife adjustment

Bell Knife is called so because it is having a shape of bell. The idea behind giving bell shape is to increase the life of the knife, which is continuously wearing off during sharpening process. The sharpening of knife is frequently required to obtained the quality skiving. The bell knife always moves away from an operator during skiving, which keeps the dust particles away from an operator.

f) Top pressure adjusting assembly

Top pressure adjusting assembly helps in setting the required pressure on material to be skived. The top pressure is determined according to the skiving required and thickness of the material.

g) Front adjusting knobs

Front adjusting knobs are situated in front part of the skiving machine and are two in numbers. The first knob is connected with the sharpening stone and used to bring it near the bell knife for sharpening. The second knob is connected with the bell knife and allows the knife to move left or right side of pressure foot accordingly.

h) Side adjusting knob

Side adjusting knob is connected with the bottom feed roller assembly, which allows to set distance between knife and feed roller according to the thickness of the scarf to be passes. Normally the minimum distance between the roller and the bell knife should not be set less than 0.5 mm. This distance may vary accordingly.

i) **Top lever**

Top lever is connected with the top vertical pressure adjusting assembly and used to lift the pressure foot during skiving according to the situation arises.

Adjustments of Splitting machine

- Adjust the gap between the upper roller and the band knife according to the product specification or material thickness.
- When the band knife is blunt grind it using the sharpening button which is connected to the sharpening stone.
- Before splitting process leather thickness must be measured using thickness measuring gauge.

Control panel

Control panel description

1- Display
2- START (I) and STOP (0) button.

Control panel keyboard description

1- Keys for the correction of the splitting measurement. Pressing + it increases, pressing- it diminished,
2- Keys for transport speed setting. Pressing + it increases pressing – it decreases,
3- Keys for splitting time setting. Pressing + it increases, pressing – it decreases.
4- Counter – splitter engagement key.
5- Emergency indicator key.
6- Maintenance indicator key.
7- Maintenance reset key.

Graphic viewer description

1- Cutting thickness symbol
2- Cutting thickness measurement
3- Graduated scale indicating the degree of correction
4- Transport speed
5- Counter – splitter symbol
6- Splitting time symbol
7- Value of set splitting time
8- Emergency signals
9- Maintenance signals

Machine use

Starting up

Turn the main switch on. Press the green **START BUTTON** on.

Sharpening

Note: - this machine is equipped with special long-life wheels which must not be dressed under any circumstances.

They must only be cleaned with the special stick supplied every time that the blade is replaced.

The blade sharpening operation is undertaken by operating the knob (1-). It must be rotated for half a turn in an anti- clockwise direction. Once sharpening will take place on carrying out the above operation.

Completely turn the knob in an anti- clockwise direction, then push it towards the machine, and whilst keeping it pressed, gently turn it in an anti-clockwise direction until it clicks. Release the knob and proceed with sharpening as described above.

Cutting thickness regulation

Turn the wheel to raise or lift the foot (or the upper conveyor roller if mounted instead of the latter). The desired cutting measurement will appear on the viewer. However it may be that this measurement does not correspond to that taken on the piece that has just been processed as it depends on the type of material and the pressure applied by the lower conveyor roller.

Lower conveyor roller pressure adjustment

It is possible to increase the pressure applied by the lower roller on the material to be processed.

Light pressure is advisable for thin and soft materials. For thicker and harder materials greater pressure is advised.

A special indicator shows how much pressure is applied.

Lower roller height regulation

The minimum distance existing between the lower roller and the blade is of approximately 0.2 millimeters and it is pre- determined by the manufacturing company by means of special fixed stops. **Warning:** these stops must not be tampered with under any circumstances!

In the event of particular workmanship that generates a very thick processing

Scrap it is possible to vary this minimum measurement by means of a special knob. For this, press the pedal down fully and tighten the knob. Release the pedal and check by how much the roller has been lowered. Proceed in the same way until the desired measurement is obtained. To restore the machine to the original conditions completely loosen the knob.

Transport speed regulation

The transport speed is regulated by means of two buttons and positioned on the control panel

A graduated scale will appear on the viewer near the symbol indicating the parameters set.

Emergency stop

In the event of an emergency the machine can be stopped by pressing the red **STOP** button on the control panel or by pressing the emergency button with the feet. To then re-start the machine it is firstly necessary to press the restore button. Then press the green START button on the control panel.

Upper roller and fixed foot

The use of the fixed foot or the upper conveyor roller depends on the material to be processed. The foot is recommended for very precise workmanship and for materials that have no sliding difficulty; permitting the processing of minimum thickness of 0.2 millimeters.

While the conveyor roller is used when the material to be processed slides with difficulty and permits the processing of thicknesses of up to a minimum of 0.6 millimeters.

Counter – splitter

Warning: - the counter – splitter must be used only with the upper conveyor roller mounted.

Press key the I key to activate the counter – splitter function.

Press keys + or - to modify the splitting time parameters. An hour – glass

Symbol will appear on the viewer and numbers indicating the set time.

Insert the material in the work zone. Once the processing time set has past the roller rotation will be inverted and the material will come out automatically.

To deactivate the counter – splitter function press the I key again.

Emergency signal

When the symbol flashes on the control panel it means that the machine is in emergency state and therefore intervention is immediately required to ensure efficient function.

Press the key and a page will appear with a list of maintenance operations; flashing signal indicates the emergency situations to be corrected like:

- Worn blade
- Loose blade
- Emergency active
- Open guard
- Scrap box full
- Dirty conveyor roller
- Blade motor alarm
- Transport motor alarm
- Sharpening motor alarm
- Fan alarm
- Open line contactor
- Machine maintenance in progress

Basic adjustments

Note:-

When carrying out adjustment operations always take the greatest care as you are working near the blade.

Fixed foot adjustment

Note:-

In the event that the thickness of the processed material differs between the left and right side it is necessary to remove the foot. Using the wheel completely lower the foot so that the distance from the blade is as short as possible, as indicated in point 3.3.

- Switch off the machine (**STOP** button) and leave the main switch on (I). Remove the lids and the work surface.
- Put the machine into maintenance mode, start it up (START button) and remove the sharp edge of the blade.
- Switch off THE MACHINE (**STOP** button).
- Dismantle the work top, and slightly loosen the screws that fix the foot. Use the screw positioned on the part, on which the thickness of the processed piece is highest and turn so that the foot is lowered. Use a thickness gauge to measure the thickness existing between the blade and the foot at the two ends; it must be of 0.2 millimeters and the same on both sides.
- Tighten the screws.
- Remove the maintenance key and press the button.
- Re-assemble the casing.

Lower conveyor roller vertical adjustment
WARNING! SHARP BLADE!

- Switch off the machine (**STOP** button) and leave the main switch on (I). Remove the lids, the work top and the central casing.
- Put the machine into maintenance mode, start it up (**START** button) and remove the sharp edge of the blade.
- Switch off the machine (**STOP** button).
- Using a thickness gauge, check that the distance measured from both parts, between the conveyor roller and the blade is equal. If not, release the stop screws and using a screwdriver turn the screws until the distance is the same from both parts.
- Secure the screw.

Belt blade adjustment
Note: - this operation must be carried out with the knife sharpened.

- Switch off the machine (**STOP** button) and leave the main switch on (I). Remove the lids, the work top and the central casing.
- Put the machine in to **MAINTENANCE** mode.
- Disengage the upper blade pusher wedges and the lower blade pusher.
- Check by how much the blade juts out from the lower counter blade as shown in the diagram. If it exceeds 4.0 millimeters on both sides release the nut and slightly loosen both screws of the blade stop rollers.

- Start up the machine (**START** button) allowing it to run for a few seconds then switch off (**START** button) allowing it to run for a few seconds then switch off (**STOP** button). The blade will have retreated slightly.

Note: - this is a very dangerous operation to be carried out only by authorized personnel.

- With the machine on check the pressure by slightly squeezing them with your fingers.
- If it is not possible it is necessary to reduce the pressure by slightly tightening the screws. If the pressure needed to stop the rollers is different from each other it is necessary to slightly tighten the screw of the roller that poses the greatest resistance.
- When the pressure necessary to halt the two rollers becomes the same tighten the nuts.
- While if the measured value is less than 3.9 it is necessary to proceed by tightening the screws verifying the pressure on the rollers as previously described.
- Re-position the upper and lower blade pusher wedges.
- Remove the maintenance key and press the button.
- Close the machine.

Special processing units

Roller

Dismantle the work surface removing the knobs that secure it. Assemble the roller surface on the machine and secure it. Adjust the key for the micro – switch, so that it fits in perfectly and allows for machine to be started up (otherwise the machine will not start).

Belt units

- Replace the lower with a rubberized roller
- Dismantle the work surface and the finger guard
- Dismantle the foot (or upper roller).
- Assemble the belt units on the bar using the special fixture slots.
- On to the work surface assemble the special finger guard, ordered from the manufacturing company, in combination with the belt units chosen for assembly.
- Assemble the work surface on the machine.
- Wind the roller pressure regulation spring as much as possible so that the oscillating support is practically blocked.

Problems and remedies

Defective splitting

- The processed side of the material has one or more creases. The blade is inadequately sharpened or it has splinters and it must therefore be sharpened.
- The thickness of the material is different if measured at the ends or is different in the central part while it is the same at the ends. The foot is worn and must therefore be replaced.
- The material thickness is not constant check the position of the blade.
- Check whether the upper plate resets on the blade along its entire length. If not, it may be that the lower part is dirty or the counter – blade fixed to it may be worn and must therefore be replaced.

Irregular material advance

- The blade edge is worn sharpen.
- If the lower conveyor roller is worn then replace.
- If there is difficulty in transporting with fixed foot when using heavy materials or "varnish", replace with upper roller.
- If there is insufficient pressure of lower roller, increase the pressure.

Insufficient scrap suction

- If the scrap container is incorrectly closed, check the closure.
- If the grill is dirty, clean using compressed air.
- If the dust bag is clogged, clean.

The machine stops or fails to start

Check the diagnostics on the control panel.

Insufficient sharpening dust removal

- ❖ Suction mouths with scale deposits, clean the wheel work area.
- ❖ Clogged clay filter clean
- ❖ If there is Intermediate full container, empty.

Adjustments of Stamping Machine:

1. The metallic die stamp or engraved wheels containing numbers must be adjusted according to the shoe last number, date of fabrication, name of the firm and style.
2. Adjust the die temperature
3. And pressure according to the type of material.

Adjustment of the machine

The machine is equipped with a position of control and work placed in front of the panel that bears the electric controls.

For a good running and for a long life the stamping machine must be used by an expert operator.

Note: - the stamping machine in order to work needs the control of only one operator. During the running the running of the machine nobody, except from the operator that must work on the machine must stay by the machine or worst work on it.

Panel that bear the electric control:

The panel that bears the electric controls is placed in correspondence to the position of work to the top of the bearing column. The electric controls are placed on a panel of glazed aluminum fixed in the right position by 4 screws with the head made like a cross. On the panel there are the following electric controls:

- **MAIN SWITCH-** two position selector

  Turning the selector in position 1 you assure the electric feeding to all the system on the side of the machine.

- **MAIN LAMP-** Green lamp

  The lamp lights when the electric system on the side of the machine is feed by the electric current main switch in position 1)

- **PRINTING TIME-** Electronic timer

  On the inch selector of the timer you set the value of the time necessary for doing the printing (time in which the printing group stays on the object to print).

- **OPTICAL FLOODLIGHT** –Two position selector

  Auctioning the selector you light the lamp of the optical floodlight that allows the perfect centering of the object to print according to the die.

- **TEMPERATURE OF THE ELECTRIC RESISTANCE**- Electronic timer

- **START BUTTON.**

Positioning of the object to print

The object to print must be set on the working plan centering the same according to the position of the counter.
Check the right position of the object to print by the optical floodlight for centering placed besides the counter. The optical floodlight must light the center of the area in which you must do the engraving.

Note:-

- Before beginning the production cycle wait that the counter reaches the set value of temperature
- The operators must, in any case, avoid to intervene the area of operation of the printing cylinder for maintenance interventions before having:

– Stopped the machine (selector MAIN SWITCH in position 0)

- Closed the tap for the interception of the air placed next to the group filter-reducer placed on the side of the machine;
- Discharged all the compressed air from the pneumatic system.

Adjusting of the position of the optical floodlight for centering
The optical floodlight is a device that allows the vertical positioning, lateral and angular once**.**

Substitution of the lamp of the floodlight
In order to substitute the lamp of the floodlight, work as follows:
- Loose from its seat the support of the floodlight unscrewing the fixing screw;
- The operator will find the floodlight and its support into his hands;
- With one hand keep fixed the lamp holder with its feeding cable and with the other unscrew the body of the floodlight;
- At this point the operator will find himself with the floodlight's holder into one hand and with the floodlight on the other and he can substitute the lamp;
- In order to set the floodlight make the operations described before, but in the opposite order.

Note:-

All the operations must be done on the machine only after having disconnected the electric feeding and after having discharged the air from the pneumatic system placed on the side of the machine.

Printing foil
Note:-

Before intervening on the counter remember to:
- Stop the machine (selector MAIN SWITCH in position 0);
- Disconnect the electric feeding cable;
- Close the tab for the air placed next to the group of filter-reducer set on the side of the machine and discharged all the compressed air from the pneumatic system.

Setting or substitution of the printing foil
In order to set the printing foil, operate as follows:

5. Unscrew the blocking knob and take away the fixing spring from the support pivot from the device that bears the foil;
6. Take away the anterior flange from the support pivot of the device that bears the foil;
7. Unroll the beginning of the printing foil making it do the way indicated in the picture, going on the device to protect hands;
8. In order to be close to the transport of the printing foil take up manually the pressure roll placed on the tractor pulley and going over the strength of the spring of return and dispose the foil under the pressure roll itself.

Transport of the printing foil

The transport of the foil is done after every printing during the phase of the going up of the printing group, thanks to the angular rotation done by the tractor pulley made of rubber and action by a control connecting rod.

A device with free wheel allows the rotation of the tractor pulley only in the direction on going on.

Key:

G- Knob, bushing and spring for the fixing of the flange
H- Flange that guides and contains the foil
I- Printing foil
J- Pressure roll
K- Pulley tractor
L- Articulated rod for the transport of the foil.

Adjusting of the transport of the printing foil

In order to make the adjusting of the transport of the printing foil, work as follows:

- Unscrew the blocking lever and move the pivot placed on the side of the rod for the control on the hole placed in the adjusting lever for the transport, according to the dimensions of the die;
- After having done the adjusting close again the blocking lever.

Adjusting of the tension of the printing foil

The tension of the printing foil is determined by the pressure exerted by the screw placed in the same axis to the pivot that bears the spool on the anterior flange.
The adjusting of the tension is done varying the charge on the spring by the pressure bushing.

Position of the micro switches

- Micro switch that is placed in correspondence to the plastic door for the protection of the printing group.
  If the protection door is not going down, the printing group does not go down. Once lowered, the bulkhead is kept in the right position by a closing magnet.

- Micro switch that controls the going down of the printing group

Key:

G. Micro security of the bulkhead
H. Device to protect hands
I. Cover for the pedal
J. Fixed pivot for the adjusting of the device to protect hands
K. Fixed pivot for the auctioning of the micro
L. Micro switch that controls the going down of the printing group

4. The metallic die stamp or engraved wheels containing numbers must be adjusted according to the shoe last number, date of fabrication, name of the firm and style.
5. Adjust the die temperature
6. And pressure according to the type of material.

Self check	***Written Test***

Name: _____ Date: _____

Instructions:

1. Write down the skiving machine adjustment procedure regarding height, depth, angle feeding speed etc.
2. Define the procedure of adjustment of the blade in splitting machine.

LG #47	LO#5 Split Components

Instruction sheet

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

- Assessing of components against job specifications
- Checking various types of components according to work ticket specifications
- Adjusting thickness gauge to specifications and correctly using
- Following work ticket specifications according to pairs and pieces
- Splitting parts to quality standards and checking against specifications

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

- Assess components against job specifications
- Check various types of components according to work ticket specifications
- Adjust thickness gauge to specifications and correctly use it
- Follow work ticket specifications according to pairs and pieces
- Split parts to quality standards and check against specifications

Learning Instructions:

Read the specific objectives of this Learning Guide.

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the “Information Sheets 1”.
3. Accomplish the “Self-check 1”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
4. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #2.
5. Read the information written in the “Information Sheet 2”.
6. Accomplish the “Self-check 2. Again you can request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
7. If you earned a satisfactory evaluation proceed to “Information Sheet 3”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #5.
8. Read the information written in the “Information Sheet 3”.
9. Accomplish the “Self-check 3” in page 13. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
10. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #8.
11. Read the information written in the “Information Sheet 4”.
12. Accomplish the “Self-check 4”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
13. If you earned a satisfactory evaluation proceed to “Information Sheet 5”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #11.
14. Read the information written in the “Information Sheet 5”.
15. Accomplish the “Self-check 5”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
16. If your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #14.

Information Sheet 1- Assessing components as per job specification

Preparation process includes sorting of cut component in order to make batches and lots as per the order break up and delivery schedule. The cut components should be assessed against job specification before going to splitting operation.

The cut component comes from the clicking room in batches or lots, normally in multiples of 10 or 12 pairs. Along with the lot, there is usually a work ticket, which contains details related to the particular batch is to be made. For example, for the closing room, it would state- Article no, size, lot no, colour and type of thread, size and type of eyelets or elastics, etc. Some times buyer's name is also specified in the detail given.

The first operation is usually to check the cut components against the work tickets to ensure the availability of all components before feeding them in to the conveyer. This makes the consecutive operations convenient and eliminates any kind of discrepancies during various operations. The purpose of this operation is to help in continuous feeding and ensure the loading in time.

During checking, the checker must keep in mind against article no, batch no, lot no, sizes, no of upper components, no of lining components, quantity of pairs, colour and any other specification provided by the customer. Responsible person is required for this job with a detailed knowledge of the various operation sequences of production. He makes the record of each feeded lot of cut component and maintains the continuity in feeding.

Recording at different production levels eases the trace ability and helps in better planning.

Splitting

The process of dividing a hide or skin horizontally into two or more layers is known as splitting. There are different types of splitting machines are available in footwear industry as per their requirements. This process is done to obtain desired thickness of leather. Leather being a natural material is never has same thickness all over the hide or skin. That is why the splitting process came into existence. Before the introduction of splitting machines, a hide was reduced in thickness by the process called shaving during tanning. The modern splitting machine has a flexible knife in the form of an endless band moving at high speed over a pair of large pulleys. When the leather to be

split is placed on the bed of the machine and pushed forward, it is gripped by pairs of rollers and propelled forward in such a manner that the band knife splits it according to set gauge adjusted. The propelling rollers are made up of a large number of small ring rolls with rubber centers, which allow for initial variations in the thickness of the hide. The knife can be adjusted to slice through the thickness of the hide at any desired depth below the grain surface by adjusting the level of the rollers. While the machine is in operation, grinders attached on its underside automatically sharpen the band knife.

Self-Check 1	*Written Test*

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 5.

Directions: Answer all the questions listed below.

Test: one word answer:

1. Write down one parameters that included in a work ticket for closing operation. (1 points)
2. What is the first operation that should be done in assessing of components against job specifications? (1 points)
3. What is the use of assessing or checking components against job specification before going to splitting operation? (1 points)
4. Define what is expected from the person assessing or checking components against job specification by assuming splitting operation. (1 points)

Information Sheet 2- Checking components according to work ticket specifications

The components that are going to be Splitted should be checked against the work ticket specification before starting splitting of the components.

The work tickets can vary from company to company. Information's regarding the product that are required for starting the next operation is mentioned in the work ticket. There are two requirements of a work ticket are:

(i) To give clear work instructions.

(ii) To control material usage.

With the help of work ticket we can know the type of material, color, style/model, size pairs and no. of pieces in upper, lining and interlining. On the basis of these information's checking of various types of components is very easy.

Work Ticket

work ticket

Name of the organization:_____
Splitter's name:_____
Date:_____
Material:_____
Color:_____
Style/ model:_____

S.No.	Size	Pairs	Pieces		
			Upper	Lining	Interlining
	Total				

Department's signature:-

Self-Check 2	***Written Test***

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 8.

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

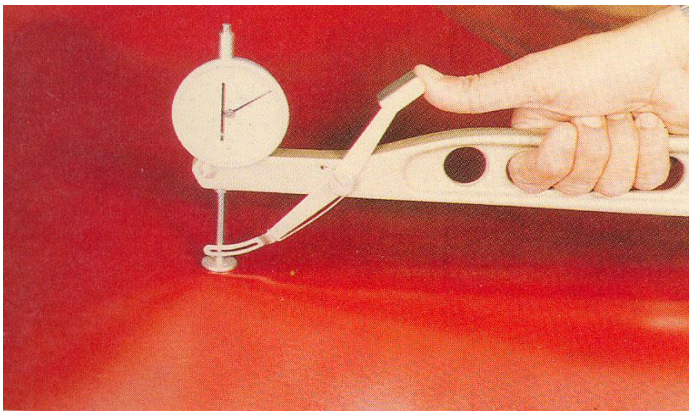
1. What is work ticket? (2 points)
2. Define the information or details that should be provided in splitting work ticket. (2 point each)

Information Sheet 3- Adjusting thickness gauge to specifications

Manual thickness gauge

The manual thickness gauge that used for measuring different splitting material thickness and should be adjusted to the specification provided before splitting process is started. Before splitting process leather thickness must be measured by using micrometer or thickness gauge. The leather must be measured substances at various locations to get correct value. The substance in but region should be within the specified range.

While receiving the material with work-ticket we must verify the material for quality and quantity issued. Then setting of the correct thickness before starting splitting of components is done. The split component should match the with the thickness gauge once a day. If setting of the thickness is not according to the specification then whole lot will be rejected.

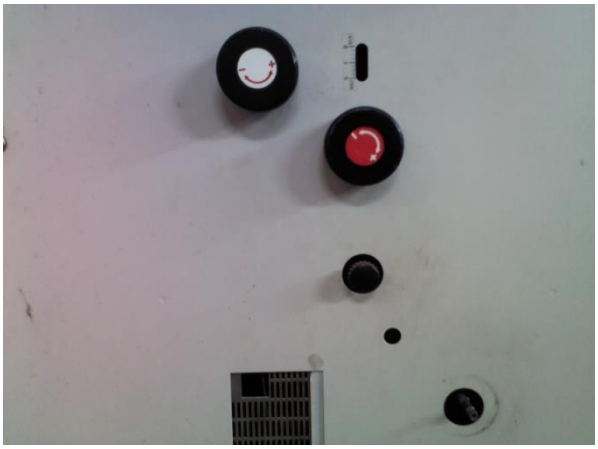


Cutting thickness adjustment

Turn the wheel to raise or lift the foot (or the upper conveyor roller if mounted instead of the latter). The desired cutting measurement will appear on the viewer. However it may be that this measurement does not correspond to that taken on the piece that has just been processed as it depends on the type of material and the pressure applied by the lower conveyor roller.

Lower conveyor roller pressure adjustment

It is possible to increase the pressure applied by the lower roller on the material to be processed.
Light pressure is advisable for thin and soft materials. For thicker and harder materials greater pressure is advised.
A special indicator shows how much pressure is applied.



Lower roller height adjustment

The minimum distance existing between the lower roller and the blade is of approximately 0.2 millimeters and it is pre- determined by the manufacturing company by means of special fixed stops. **Warning:** these stops must not be tampered with under any circumstances!
In the event of particular workmanship that generates a very thick processing

Scrap it is possible to vary this minimum measurement by means of a special knob. For this, press the pedal down fully and tighten the knob. Release the pedal and check by how much the roller has been lowered. Proceed in the same way until the desired measurement is obtained. To restore the machine to the original conditions completely loosen the knob.

Self-Check 3	*Written Test*

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 11.

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

Test I: very short answers:

1. What is the use of thickness gauge? (1 point)

2. Why it is necessary to measure leather thickness before splitting process by manual thickness gauge. (1 point)
3. Setting of the correct thickness before starting splitting of components is done. Why? (1 point)
4. For thin and soft material what type of pressure we need. (1 point)

Test II: fill in the blanks

5. The minimum distance existing between the lower roller and the blade is of approximately ----------. (1 point)
6. For thicker and harder materials ---------- is advised. (1 point)
7. ---------- gauge that used for measuring different splitting material thickness. (1 point)
8. Before splitting process leather thickness must be measured by using micrometer or ----------. (1 point)

Information Sheet 4- Following of work ticket specification in pairs and pieces

Before starting splitting of components, work ticket with standard format and having specification should be prepared and followed. This work ticket gave clear information for the person performing the splitting operation. Thus the splitting operation should be done based on the information given in the work ticket or work ticket specification. A sample work ticket is shown below.

Work Ticket

work ticket

Name of the organization:_____

Splitter's name:_____

Date:_____

Material:_____

Color:_____

Style/ model:_____

S.No.	Size	Pairs	Pieces		
			Upper	Lining	Interlining
	Total				

Department's signature:-

Upper components: - is the material that constitutes the outside of the footwear. It can be leather or synthetic. Work ticket providing enough information about upper components should be prepared and followed during splitting of components.

Lining components: - is the material which constitutes the inside of the footwear i.e. the materials against the foot and it can be leather or synthetic. While splitting the lining components the work ticket should be followed

Self-Check 4	Written Test

Name: _____ Date: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 14.

Directions: Answer all the questions listed below.

Test: very short answers:

1. This ---------- gave clear information for the person performing the splitting operation. (1 point)
2. ----------is the material that constitutes the outside of the footwear (1 point)
3. ---------- is the material which constitutes the inside of the footwear (1 point)

Information Sheet 5- Splitting and checking parts against quality standard

You know splitting operation is usually carried out on a band knife splitting machine. It reduces the whole area of the material to a given substance. It helps as for reducing the thickness of material to enable it in to the shape of the foot.

The total thickness of the upper is reduced to the required uniform thickness on the splitting machine. The material /the upper components are fed in between the feed roller and an upper roller also known as pressure foot. The pressure on the material is applied between them. A band knife running with a perfect edge could be set relative to the feed rollers to split the material to the required thickness. The band knife is constantly sharpened by a grinding stone in built within the machine.

In some machines the material could be split down even to 0.1mm thicknesses feed splitting thickness is fitted can be pre-selected the thickness is displayed on a digital indicator. The machine is fitted with a section devise for dust. Therefore the Splitted parts should be checked against the quality standard and specifications.

There are different types of splitting machines are available in footwear industry as per their requirements. This process is done to obtain desired thickness of leather. Leather being a natural material is never has same thickness all over the hide or skin. That is why the splitting process came into existence. Before the introduction of splitting machines, a hide was reduced in thickness by the process called shaving during tanning. The modern splitting machine has a flexible knife in the form of an endless band moving at high speed over a pair of large pulleys. When the leather to be split is placed on the bed of the machine and pushed forward, it is gripped by pairs of rollers and propelled forward in such a manner that the band knife splits it according to set gauge adjusted. The propelling rollers are made up of a large number of small ring rolls with rubber centers, which allow for initial variations in the thickness of the hide. The knife can be adjusted to slice through the thickness of the hide at any desired depth below the grain surface by adjusting the level of the rollers. While the machine is in operation, grinders attached on its underside automatically sharpen the band knife.

Even

The thickness of the Splitted components must have uniform thickness throughout its area. The thickness of Splitted component should be checked by the thickness gauge and make sure that all area of the component has the same thickness.

Accuracy
Accuracy of the splitting machine must be verified by the recognized body for getting accurate thickness while splitting component.

Quality check points
Defective splitting

- The processed side of the material has one or more creases. The blade is inadequately sharpened or it has splinters and it must therefore be sharpened.

- The thickness of the material is different if measured at the ends or is different in the central part while it is the same at the ends. The foot is worn and must therefore be replaced.

- The material thickness is not constant check the position of the blade.

- Check whether the upper plate resets on the blade along its entire length. If not, it may be that the lower part is dirty or the counter – blade fixed to it may be worn and must therefore be replaced.

Irregular material advance

- The blade edge is worn sharpen.
- If the lower conveyor roller is worn then replace.
- If there is difficulty in transporting with fixed foot when using heavy materials or "varnish", replace with upper roller.
- If there is insufficient pressure of lower roller, increase the pressure.

Insufficient scrap suction

- If the scrap container is incorrectly closed, check the closure.
- If the grill is dirty, clean using compressed air.
- If the dust bag is clogged, clean.

The machine stops or fails to start
Check the diagnostics on the control panel.

Insufficient sharpening: dust removal

- Suction mouths with scale deposits, clean the wheel work area.

- ❖ Clogged clay filter clean
- ❖ If there is Intermediate full container, empty.

Self-Check 5	***Written Test***

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 17.

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

Test I: Fill in the blanks

1. ---------- process is done to obtain desired thickness of leather. (Mark 1)
2. If the thickness of Splitted component varies than ---------- of the foot will not be accurate. (Mark 1)
3. Before the introduction of splitting machines, a hide was reduced in thickness by the process called ---------- during tanning. (Mark 1)
4. The material thickness is not constant check the position of the ----------.(Mark 1)
5. The thickness of the Splitted components must have ---------- throughout its area. (Mark 1)

Test II One word answer:

6. The material /the upper components are fed in between the feed roller and an upper roller also known as ----------. (Mark 1)
7. If there is insufficient pressure of lower roller, what will happen? (Mark 1)
8. The blade is inadequately sharpened than what will happen? (Mark 1)
9. If the dust bag is clogged than what will happen? (Mark 1)

LG #48	LO# 6. Emboss, stamp and mark components

Instruction sheet

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

- **Assessing components as per job specification**
- **Checking components as per work ticket**
- **Adjusting dies for embossing machine**
- **Adjusting dies for stamping machine**
- **Performing stamping and marking operations manually**
- **Following of work ticket specification in pairs and pieces**
- **Embossing and/or stamping parts to quality standards**
- **Marking parts to specification by hand or marking device**

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

- Assess components against job specifications
- Check various types of components according to work ticket
- Adjust dies for the stamping machine to specification
- Follow work ticket specifications according to pairs and pieces
- Stamp parts to quality standards
- Mark parts to specification either by hand or by marking device

Learning Instructions:

Read the specific objectives of this Learning Guide.

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the “Information Sheets 1”.
3. Accomplish the “Self-check 1” . Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
4. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #2.
5. Read the information written in the “Information Sheet 2”.
6. Accomplish the “Self-check 2”. Again you can request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
7. If you earned a satisfactory evaluation proceed to “Information Sheet 3”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #5.
8. Read the information written in the “Information Sheet 3”.
9. Accomplish the “Self-check 3” in page 15. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
10. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #8.
11. Read the information written in the “Information Sheet 4”.
12. Accomplish the “Self-check 4”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
13. If your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #11.

Information Sheet 1- Assessing components as per job specification

Preparation process includes sorting of cut component in order to make batches and lots as per the order break up and delivery schedule. The cut components should be assessed against job specification before going to stamping and marking operation.

The cut component comes from the clicking room in batches or lots, normally in multiples of 10 or 12 pairs. Along with the lot, there is usually a work ticket, which contains details related to the particular batch is to be made. For example, for the closing room, it would state- Article no, size, lot no, colour and type of thread, size and type of eyelets or elastics, etc. Some times buyer's name is also specified in the detail given.

The first operation is usually to check the cut components against the work tickets to ensure the availability of all components before feeding them in to the conveyer. This makes the consecutive operations convenient and eliminates any kind of discrepancies during various operations. The purpose of this operation is to help in continuous feeding and ensure the loading in time.

During checking, the checker must keep in mind against article no, batch no, lot no, sizes, no of upper components, no of lining components, quantity of pairs, colour and any other specification provided by the customer. Responsible person is required for this job with a detailed knowledge of the various operation sequences of production. He makes the record of each feeded lot of cut component and maintains the continuity in feeding.

Recording at different production levels eases the trace ability and helps in better planning.

Self-Check 1	***Written Test***

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 5.

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

Test:-I Very short answers:

5. What is the first operation in assessing of components against job specifications? (1 point)
6. Write down one parameter that is included in a work ticket for closing operation. (1 point)
7. What is the use of assessing or checking components against job specification? (1points)
8. What is expected from the person assessing or checking components against job specification? (1 point)

Information Sheet 2- Checking components as per work ticket

Before starting embossing of components, work ticket with standard format and having specification should be prepared and followed. This work ticket gave clear information for the person performing the embossing operation. Thus the embossing operation should be done based on the information given in the work ticket or work ticket specification. A sample work ticket is shown below.

Work Ticket

work ticket

Name of the organization:_____

Embossername:_____

Date:_____

Material:_____

Color:_____

Style/ model:_____

S.No.	Size	Pairs	Pieces		
			Upper	Lining	Interlining
	Total				

Department's signature:-

Information Sheet 3- Performing stamping and marking operations manually

Marking is the process to identify the fitting places for other components like eyelets, ornaments, decoration stitch and cording. Marking operation can be done either by **hand** or marking **machine**.
In this operation, marks are put on the upper material to enable the operatives to position/fit the components together accurately before stitching. This enables the fitting operations easy and convenient during upper making. Stitch marking ensures for the position of any kind of fancy stitching to be done on upper and also helps in identifying the positions of eyelets, buckles, ornaments, punching etc. There are various methods of stitch marking available in footwear industry are in use according to their requirement and feasibility. The selection of the marking method depends on the production situation and resources available. This will also depends on the cost of marking resource, productivity and order quantity. Following are the different marking methods available in the footwear industry with their merits and demerits:

- Prick Marking
- Pricking Awl
- Stitch-marking Machines

Hand
Manual marking can be done by hand with the help silver pencil and patter. Marking by hand is done by putting the pattern on the component and tracing with silver pencil.
Machine
Marking can be done during clicking operation by pricker
s and other stitch marking materials assembled with the clicking knives or dies.

Self-Check 3	*Written Test*

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 15-16.

Directions: Answer all the questions listed below.

Test:-I Very short answers

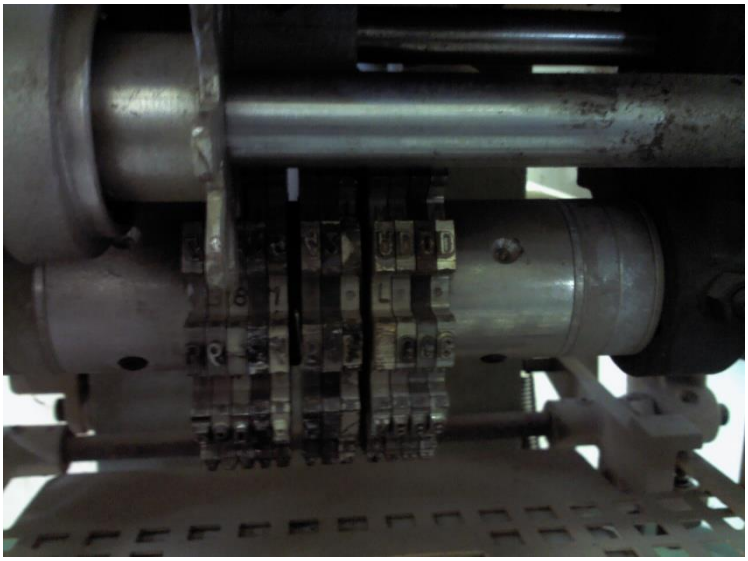
4. What is marking? (1 points)
5. In how many ways marking operation can be performed? (1 points)
6. What is the benefit of marking done by pricker on clicking knives? (1 points)
7. What is the use of marking? (1 points)
8. On what parameters the selection of marking methods depends? (1 points)

Information Sheet 4- Adjusting dies for embossing machine

Information Sheet 5_ Adjusting dies for stamping machine

The dies that used for stamping different stamping details should be adjusted as per the detail to be stamped and specification before stamping process is started.

The stamping details could include: size, fitting, article no, shoe number, work ticket number, factory code, last & type of material used.

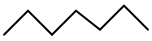


Article number

Each product in the production chain has unique article number. This number is stamped on the component by using stamping machine with adjusted stamping dies as per specification. This number is used for identifying each component from each other.

Size

The size stamping on upper components can be done as per the specification given and could be in following ways:

- Size can be marked in various size systems like English and French sizes.
- It also can be marked as 41 
- It also can be marked as 42 
- It also can be marked as 43 

- And so on

For English size marking “V” shape notch shows size 5. For 6 sizes it shows 

This information might be used to:

1. Trace faulty footwear back to the unit that made it.
2. Order new stocks of the same styles, sometimes known as “repeats”.
3. Ensure that any returned shoes can repair on the correct size and shape lasts.
4. Enable the production units to see what size uppers they are dealing with.

Plan number

Plan number is stamped on the component for identification of different orders that the company is working with. This number is stamped on the component by stamping dies adjusted as per the specification.

Pair number

Pair number is used to identify pairs in case of leathers with different variety shades colors and grain difference. In this case the pair number is stamped on each pair easy differentiation of each pair shade, grain difference and color.

Date

Date is stamped on the component for easy identification of the time the component is prepared and also used to indicate the life span of the component from the starting date.

Self-Check 5	*Written Test*

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 8-9.

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

3. Define the following terms (1 point each) (Total marks 3)
   a) Article number
   b) Pair number
   c) Plan number
4. What is the use of stamping the following details on a component? (1 point each)
   a) Size (Total marks 3)
   b) Article number
   c) Pair number
5. What types of details are stamped on a component? (1point)

Information Sheet 6_ Following of work ticket specification in pairs and pieces

Before starting stamping of components, work ticket with standard format and having specification should be prepared and followed. This work ticket gave clear information for the person performing the stamping operation. Thus the stamping operation should be done based on the information given in the work ticket or work ticket specification. A sample work ticket is shown below.

Work Ticket

work ticket

Name of the organization:_____

Stamper's name:_____

Date:_____

Material:_____

Color:_____

Style/ model:_____

S.No*.	Size	Pairs	Pieces		
			Upper	Lining	Interlining
	Total				

Department's signature:-

Upper components: - is the material that constitutes the outside of the footwear. It can be leather or synthetic. Work ticket providing enough information about upper components should be prepared and followed during stamping of components.

Lining components: - is the material which constitutes the inside of the footwear i.e. the materials against the foot and it can be leather or synthetic. While stamping the lining components the work ticket should be followed

Information Sheet 7_ Embossing and/or stamping parts to quality standards

Embossing and debossing are the process es of creating either raised or recessed relief images and designs in paper or other materials an embossed pattern is raised against the back ground ,while a debossted pattern is sunken in to the surface of material but might protrude some what on the reverse side

Fig7.1 Embossing machine

Stamping

Stamping is done against the size, article no, batch no, and etc.

The size might be stamped or molded on the sole, it may be on the in sock stuck at the heel of the shoe, but almost certainly the size will be stamped somewhere on the upper. The usual places are either the inside of the quarters or on the backside of the tongue.

Whichever is chosen, it must be as per specification given, yet not distract from the appearance of the upper.

The details are usually stamped on the upper and lining using heated metal dies set in a stamping machine. The attached dies are pressed down on a foil ribbon, which transfers the coating of the ribbon onto the component. Sometimes some material like fur linings is impossible to stamp. So in this case, it is usual to stamp the details on a suitable material and either stick or stitch this with Fur lining in required place.

Fig 7.2 stamping machine

Stamping can either be done manually by hand or by machine. The manual stamping is normally done by rubber stamps and inkpad and mostly suitable for stamping bottom components. Machine stamping is suitable for upper components. In this case stamping is done with the help of heated die and foil.

PRINTING GROUP

On the printing group there are all the controls that allow the adjusting and the control of the printing device.

It is constituted principally by a counter formed by a series of knurled disks (maximum 25) free to turn around a horizontal axis; on each tooth there is a symbol: letter or number.

The selection of the type to set on each disk is made by a selector knurled wheel (selector) that can run axially and turn around its own axis:

- The axial running of the selector wheel is made through a knob placed frontally to the operator on the left side of the printing group seen from the side of the controls; the auctioning of the knob, thanks to a knurled belt, provokes the displacement of the selector knurled wheel in correspondence to the desired disk.

The selector wheel is kept pushed in the axial position selected by a sphere that goes to engage one of the holes placed on the upper part of the counter.

- The rotation of the selector wheel is done through a knob placed on the right side of the printing group, seen from the side of the controls. Turning the selector wheel, you turn the selection knurled wheel, in the way as you set the disk angularly and in order to print the disordered type. The type that is printed during the printing phase can be seen on every disk and precisely on the hole for the reading and it can be read from an operator placed frontally to the machine and that observes through the plastic door. Practically the type placed on the tooth towards the bottom and that will be engaged in the printing can be seen on the hole (bottom of the tooth) placed on the same disk and put out of phase of 90^{o} according to the tooth for the printing. The right positioning of the printing disk is done through a sphere placed on the right side of the printing group seen from the side of the controls.

The counter can be equipped with 2 die holders in which there are two dies where on each of them there are the types that must be printed on the object that must be printed on.

Each die is fixed in the right position in its place by two spheres set on springs.

Note:

- As the knurled wheels can turn freely work as follows:

Never set temperatures that are more than 150^{o}c on the electric resistance for the heating of the counter;

Lubricate daily the axis that bears the disks, the rod of the same by the oiling glass given by the builder together with the machine. The lubrication must be done by the foreseen holes. For the lubrication, use only pure silicon oil.

- We suggest you should not set the machine in environments with production of powder. The powder could damage the machine part, in particular the counter, causing the misusing of the knurled disks.
- When the machine is ready to work, the counter reaches high temperatures. The operator must be careful of not to touch the area of the counter in the way as you can avoid dangers of burning or other kind of damages.
- Before intervening on the counter wait that the same has become cold.

Key of the details:-

1. Knob for the displacing of the selector knurled wheel.
2. Selector knurled wheel.
3. Printing disk.
4. Knob for the rotation of the printing disk.
5. Sphere for the right positioning of the printing.
6. Hole for the reading of the printing type selection on the disk.
7. Die holder dies.
8. Dies.
9. Holes for the lubrication of the bearing axis and of the rod of the printing disks.
10. Holes for the right positioning of the selector wheel
11. Knurled belt for the running of the selector knurled wheel

Positioning of the object to print

The object to print must be set on the working plan centering the same according to the position of the counter.

Check the right position of the object to print by the optical floodlight for centering placed besides the counter. The optical floodlight must light the center of the area in which you must do the engraving.

Note:-

- Before beginning the production cycle wait that the counter reaches the set value of temperature
- The operators must, in any case, avoid to intervene the area of operation of the printing cylinder for maintenance interventions before having:
  - Stopped the machine (selector MAIN SWITCH in position 0)
  - Closed the tap for the interception of the air placed next to the group filter-reducer placed on the side of the machine;
  - Discharged all the compressed air from the pneumatic system.

Fig 7.3

Color of stamping

The stamping is done with the help of heated die and foil, which enhances the appearance of shoe. Mostly stamping is done with ribbon foil or golden foil that enhances the appearance of the stamped details.

Self-Check 7	*Written Test*

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 12.

Directions: Answer all the questions listed below.

Fill in the blanks:

9. Stamping can either be done manually by hand or by ----------.(1 point)
10. The stamping is done with the help of heated ----------.(1 point)
11. The size might be stamped or moulded on the -------- (1 point)
12. The stamping is done with the help of heated ----------, which enhances the appearance of shoe1 point)
13. For the lubrication, use only pure ----------(1 point)
14. Never set temperatures that are more than ---------- on the electric resistance for the heating of the counter.(1 point)
15. . Machine stamping is suitable for ---------- (1 point)
16. Stamping is done against the size, ---------- batch no etc. (1 point)

Information Sheet 8_ Marking of parts to specification either by hand or by marking device

Marking is the process to identify the fitting places for other components like eyelets, ornaments, decoration stitch and cording. Marking operation can be done either by **hand** or marking **machine**.

In this operation, marks are put on the upper material to enable the operatives to position/fit the components together accurately before stitching. This enables the fitting operations easy and convenient during upper making. Stitch marking ensures for the position of any kind of fancy stitching to be done on upper and also helps in identifying the positions of eyelets, buckles, ornaments, punching etc. There are various methods of stitch marking available in footwear industry are in use according to their requirement and feasibility. The selection of the marking method depends on the production situation and resources available. This will also depends on the cost of marking resource, productivity and order quantity. Following are the different marking methods available in the footwear industry with their merits and demerits:

- Prick Marking
- Pricking Awl
- Stitch-marking Machines

Hand

Manual marking can be done by hand with the help silver pencil and patter. Marking by hand is done by putting the pattern on the component and tracing with silver pencil.

Machine

Marking can be done during clicking operation by pricker

s and other stitch marking materials assembled with the clicking knives or dies.

Self-Check 8	***Written Test***

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 15-16.

Directions: Answer all the questions listed below.

Test:-I Very short answers

9. What is marking? (1 points)

10. In how many ways marking operation can be performed? (1 points)

11. What is the benefit of marking done by pricker on clicking knives? (1 points)
12. What is the use of marking? (1 points)
13. On what parameters the selection of marking methods depends? (1 points)

LG #49	LO# 7 Skive the components

Instruction sheet

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

- **Selecting components for skiving**
- **Performing skiving operation manually.**
- **Performing Skiving machine adjustment**
- **Skiving of component**
- **Following work ticket specifications**
- **checking skived parts against quality specifications**
- **Performing Skiving in accordance OHS measures**

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

- The component to be skived is selected
- Perform skiving operation manually according to supervisory guidance.
- Machine adjustment is performed to the required skive thickness and width.
- The component is skived as per work specification
- Work ticket specifications are followed according to pairs and pieces.
- Parts are skived to quality standards and checked against specifications.
- *Skiving* is performed in accordance with procedures and OHS measures..

Learning Instructions:

Read the specific objectives of this Learning Guide.

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the “Information Sheets 1”.
3. Accomplish the “Self-check 1”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
4. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #2.
5. Read the information written in the “Information Sheet 2”.
6. Accomplish the “Self-check 2”. Again you can request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
7. If you earned a satisfactory evaluation proceed to “Information Sheet 3”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #5.
8. Read the information written in the “Information Sheet 3”.
9. Accomplish the “Self-check 3”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
10. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #8.
11. Read the information written in the “Information Sheet 4”.
12. Accomplish the “Self-check 4”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
13. If you earned a satisfactory evaluation proceed to “Information Sheet 5”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #11.
14. Read the information written in the “Information Sheet 5”.
15. Accomplish the “Self-check 5. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
16. If your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #14.

Information Sheet 1- Selecting components for skiving

Skiving is the process of reducing the thickness of the material either from grain or flesh side in order to aid and eases the various closing operations at different levels. A layer of substance is removed under this process without hampering the existing strength of the material. When we join or attach two components together without any skiving, it doubles the substance and creates problems for next operations to perform during shoe making and cause discomfort to wearer. Hence the importance of skiving can be noticed and specified results could be achieved. Skiving is necessary for the appearance and comfort of final shoe.

In case of leather, skiving operation is much easier to perform than on synthetic material. The skiving is not being done on textile due to its nature & feel.

Selecting the component going to be skived is the important factors before starting skiving operation. The component that required skiving is selected based on the following criteria's:

- If the component to be stitched together has thick over lapping margins(underlay skiving)
- In case the lasting margins has thick margins that create problems during lasting operations(lasting allowance)
- If the component has margins that is to be folded(folding skive)
- If case of seam stitching needed(seam skiving)
- In case raw edge skiving is needed

Therefore the component to be skived is selected based on the above criteria and the need part is skived as per the specification placed.

Self-Check 1	***Written Test***

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 6.

Directions: Answer all the questions listed below. (Total marks 4)

Test-I

One word answer:

9. What is skiving? (1 points)
10. What is splitting? (1 points)
11. Skiving on leather is easier or on the synthetic. (1 points)
12. Why we do skiving? (1 points)

Information Sheet3 - Performing Skiving machine adjustment

The skiving machine makes the work easy and increases the productivity; hence it is suitable for mass production in footwear industry. This machine can be adjusted as per the required thickness and width to be skived. The different machine parts involved to make the required skiving are:

- Pressure Foot
- Bell Knife
- Bottom Feed Roller
- Sharpening stone
- Skiving guide
- Top pressure adjusting assembly
- Front adjusting Knobs
- Side adjusting Knobs
- Top lever

1. Guide adjustment (skiving guide)

Skiving guide is fixed near the pressure foot and used to determine the skiving width during skiving. It should be properly locked or unlocked during setting.

2. Pressure foot

There are various kinds of pressure foot exists in closing room to obtained different kinds of skiving. The main function of the pressure foot is to press the material and determined the width and angle of skiving been done. The material touching part of pressure foot should be smooth and fine as it always touches the grain surface of material and can damage the top surface in case of roughness or scratches on it. Such scratch may damage the grain layer of material and causes rejection and wastage to the company. The design and shape of the pressure foot vary according to the type of skiving required.

- Parallel shape of pressure foot is requires for folding skiving. (Parallel as per knife and roller).
- Flat fore part of pressure foot is requires for raw edge and underlay skiving. (Width and angle of skiving).
- Grooved in between the pressure foot is requires to make grooved skiving.
- Teflon material pressure foot or Teflon tape wrapped foot is used for skiving on synthetic material.

3. Feed rollers(Bottom feed roller)

Bottom feed roller helps in feeding the material by gripping the flesh side of the material without damaging it.

Adjustments

Feed roller is adjusted by using side adjusting knob connected with the bottom feed roller assembly. This side adjusting knob set the distance between knife and feed roller according to the thickness of the scarf to be passes. The minimum distance between the roller and the bell knife should not be set less than 0.5 mm. However, this distance may vary accordingly.

Types of feed rollers

There are different types of feed rollers available with machine mechanism for different types of material to be skived. Following are the types of rollers available to suit the particular material.

- Emery Roller
- Rubber Roller
- Metallic Roller

Emery Roller

This roller is made of emery stone and available in three types are **coarse, medium and fine emery**. The term coarse, medium and fine is used for the roller surface, which always comes in the contact of material during skiving.

The roller, which is having **coarse surface**, is used for thick, heavy and tight material to feed it under the pressure foot in order to have proper grip from beneath the material during skiving. This type of roller is used in medium and heavy-duty skiving machine.

The roller, which is having **medium surface**, is used for medium structure and thickness of material to feed it under the pressure foot in order to have proper grip from beneath the material during skiving. This type of roller is used in medium duty skiving machine.

The roller, which is having **fine surface**, is used for light and thin material to feed it under the pressure foot in order to have proper grip from beneath the material. This type of roller is used in light duty skiving machine.

Rubber Roller

This roller is made of rubber in order to incorporate with the very fine and thin material to be skived. According to experience it is noticed that mostly the feed roller damages the fine material from flesh side and leaves its impression on material surface during skiving. These impressions are quite visible from the grain side of material, which looks ugly and reduce the life of the material. Therefore rubber rollers are noticed most suitable for skiving fine, thin and delicate materials.

Metallic Roller

This roller is made of steel in order to incorporate with the thick and thermoplastic material to be skived. According to experience it is noticed that thermoplastic material leaves its adhesive after melting by the friction of knife, pressure foot and feed roller. The melted adhesive stick over the feed roller and during removing it damages the surface by leaving patches on it. These patches disturb the feed and hence metallic rollers are most suitable for skiving thermoplastic materials.

4. **Grinding stone(Sharpening stone)**

Sharpening stone is in round shape and used to sharpen the bell knife. The surface of the stone is very fine and also required dressing during sharpening the knife. It is fixed under the gearbox assembly and connected with side knob foe necessary movements. This movement includes bringing the stone towards the knife and send back after sharpening the knife.

5. Bell knife adjustment

Bell Knife is called so because it is having a shape of bell. The idea behind giving bell shape is to increase the life of the knife, which is continuously wearing off during sharpening process. The sharpening of knife is frequently required to obtained the quality skiving. The bell knife always moves away from an operator during skiving, which keeps the dust particles away from an operator.

6. Top pressure adjusting assembly

Top pressure adjusting assembly helps in setting the required pressure on material to be skived. The top pressure is determined according to the skiving required and thickness of the material.

7. Front adjusting knobs

Front adjusting knobs are situated in front part of the skiving machine and are two in numbers. The first knob is connected with the sharpening stone and used to bring it near the bell knife for sharpening. The second knob is connected with the bell knife and allows the knife to move left or right side of pressure foot accordingly.

8. Side adjusting knob

Side adjusting knob is connected with the bottom feed roller assembly, which allows to set distance between knife and feed roller according to the thickness of the scarf to be passes. Normally the minimum distance between the roller and the bell knife should not be set less than 0.5 mm. This distance may vary accordingly.

9. **Top lever**

Top lever is connected with the top vertical pressure adjusting assembly and used to lift the pressure foot during skiving according to the situation arises.

Self-Check 3	Written Test

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on pages 8-9.

Directions: Answer all the questions listed below.

Test-I Very short answers

1. Write down the name of any part of skiving machine. (1points)
2. Define the function of the following skiving machine parts. (1 point each)
   a) Skiving guide
   b) Feed roller
   c) Pressure foot
   d) Bell knife
   e) Grinding stone
3. List the types of feed rollers. (1 points)
4. Which parts of skiving machines are used for adjusting and determining skiving width and thickness? (1 points)

Information Sheet4 - Skiving the component

It is obvious that skiving improve the appearance of the footwear, by removing any sort of bulkiness caused by the over lapping of component or by joining of components. Skiving operation is done as per work specification requirement.

The skiving operation is required to perform to achieve various treatments in upper closing like folding, back seam, attaching component together, cording, binding, bag top line, French binding etc. Different types of skiving are required to do different kinds of operations.

a) Raw edge skiving

Open Raw Edge

Open raw edge is used when the upper sections are to be left with raw edges, especially on heavy leathers with/ without any sort of edge treatment such as gimping/punching/ binding, to give a smooth and uniform finish/look along the edge of the component and to remove loose fibers from the edge.

The depth of skive is normally 1/3rd of the material thickness and width of skive must not be more than the edge stitching distance, i.e., 1.5 -2 mm.

Closed Raw Edge

Used in case of closed seams in order to give smooth and uniform finish by removing excess bulkiness from the edges.

A steep angle skive of 35 degrees is made, the width of which is approximately 2-3 mm and depth is 2/3rd of the material thickness.

Width and depth of skive could vary depending upon the material thickness and strength. On thin and soft materials, there is no need to go for closed edge skives. Care must be taken not to affect the strength of the material.

Burnished Edge

It is actually a variation of the folding skive. Skive is done at an angle of 40- 45 degrees.

Skive must be uniform because after skiving, the edge has to be passed under a heated iron. The heat causes the leather to contract and turn inwards towards the flesh side thus giving a folded appearance.

b) Underlay skiving

Underlay Skive for Lapped Seams

It is done on the bottom component where two components (top and bottom) are to be stitched together by overlapping.

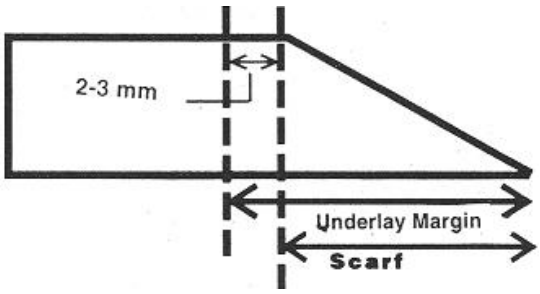
It is done to avoid any bumps or ridges on the upper, which could cause problems in stitching as well as print- through after lasting.

These bumps also cause the uneven featheredge, uneven roughing and leaves gapping during sole lying.

Normally, underlay skive is done on the flesh side, but in case of unlined footwear, it can be done on the grain side of the component, to give a better appearance inside the footwear.

Skiving depth must taper down gradually to the finest possible edge to prevent a print-through after lasting.

Skiving width must be 2- 3mm behind the stitch marking line/ underlay margin, so that at least the first row of stitching comes on full thickness of both the materials, to give enough strength and durability to the seam. Hence, it is necessary to do stitch marking before underlay skiving.

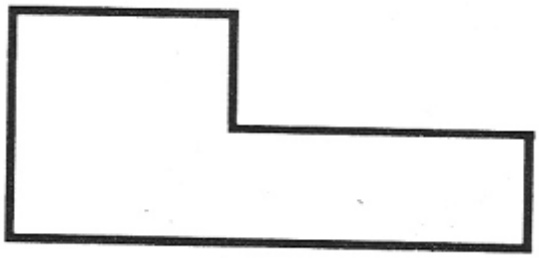


c) Folding skiving

It is necessary to remove the bulk so that the leather returns to its original thickness after folding over.

Hollow Fold Skive

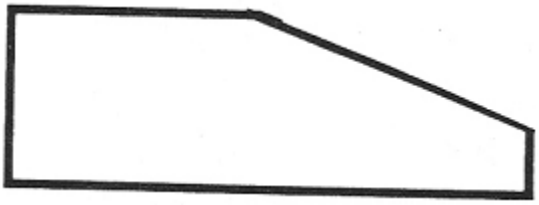
Hollow Fold Skive is done in case of heavy leathers. Depth of skive is half of the material thickness and width is usually twice the folding margin plus 1mm roll over allowance.



Shallow/Wedge Fold Skive

Shallow/Wedge Fold Skive is done in case of comparatively thin and soft leathers.

Depth of skive tapers down at 35-degree angle leaving 1/3rd of material thickness at the tapered edge and width is twice the folding margin.



Fold Skive for Bagged/Roll Top Edge

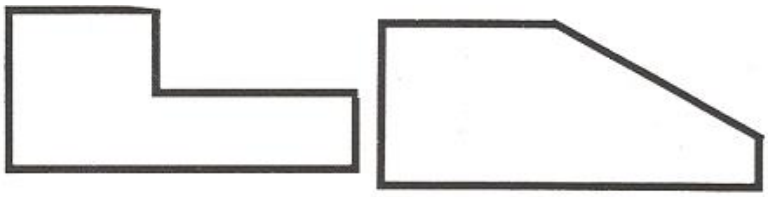
It is done to give a smooth top line with no stitching visible. Skive is same as shallow/ wedge fold skive. Enough substance must be left at the edge to hold the stitching. The lining must also be skived in a similar manner in order to eases the folding operation before turning the lining.

Fold Skive for Blind/Invisible Seam

Fold Skive for Blind/Invisible Seam is done on components to give a folded appearance without the stitching showing.

The bottom component is underlay skived and the top component is shallow/ wedge fold skived for soft leathers and hollow skived for hard leathers.

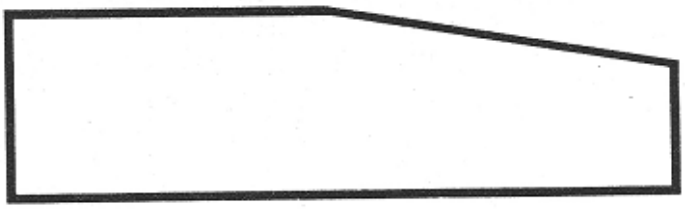
Then the two components are stitched face-to-face, top component folded over and stuck to the bottom component. Grain skiving is being done sometimes in order to stick the surface while turning the component after stitching.



Hollow Skive or Shallow Skive

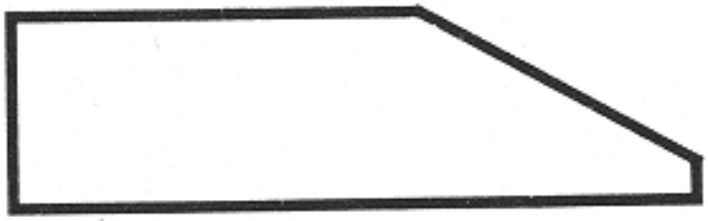
d) Lasting margin skiving

On heavy leathers, the lasting margin is skived at the toe to reduce bulkiness during lasting and to ease pleating. For this, the skiving must be wide but not deep so as not to affect the strength of the material.



e) Toe-puff and Counter stiffener skiving

The skiving done these is similar to shallow/wedge skive and this is done in order to avoid the print through on the toe and counter and also, to make lasing easier in case of counter.



Self-Check 4	*Written Test*

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 16.

Directions: Answer all the questions listed below.

Very short answers:

1. What is the importance of skiving? (1 point)
2. Write down the name of one type of skiving. (1 point)
3. What is open raw edge skiving? (1point)
4. Define folding type of skiving. (1 point)
5. Why skiving width must be 2-3mm behind the stitch marking line/ underlay margin in case of underlay skiving? (1 point)

Fill in the blanks

1. Normally, ---------- is done on the flesh side, but in case of unlined footwear, it can be done on the grain side of the component (1 point)
2. On heavy leathers, ---------- is skived at the toe to reduce bulkiness during lasting and to ease pleating. (1 point)
3. ---------- Fold Skive is done in case of comparatively thin and soft leathers. (1 point)
4. ---------- is used when the upper sections are to be left with raw edges.

Information Sheet5- Following work ticket specifications

Work ticket with standard format and having specification should be prepared and applied through the skiving operation. This work ticket gave clear information for the person performing the skiving operation. The skiving should be done based on the information given in the work ticket or work ticket specification. A sample work ticket is shown below.

Work Ticket

Skiving job ticket

Name of the organization:_____
Skiver's name:_____
Date:_____
Material:_____
Color:_____
Style/ model:_____

Size	Pairs
Total	

Department's signature:-

Self-Check 5	***Written Test***

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 19.

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

1. What is the use of work ticket for skiving shoe components or parts.(1 points)
2. Prepare a sample work ticket showing given information required in skiving operation of a shoe component. (2 points)

Information Sheet6- checking skived parts against quality specifications

The components or the parts of a shoe must be skived according to quality standards requirement and it should be checked against the specifications. There is quality standards requirement for various types of skiving. These are:

- In open raw edge skiving should be done at a steep angle skive of 35 degrees and the width of skiving is approximately 2-3 mm and depth of skiving is 2/3rd of the material thickness.
- In case of closed edge skiving the depth of skive is normally 1/3rd of the material thickness and width of skive must not be more than the edge stitching distance, i.e., 1.5 -2 mm.
- Skiving depth must taper down gradually to the finest possible edge to prevent a print- through after lasting in underlay skive for lapped seams.
- Skiving width must be 2- 3mm behind the stitch marking line/ underlay margin in case of underlay skive for lapped seams.
- In case of hollow fold skive the depth of skive is half of the material thickness and width is usually twice the folding margin plus 1mm roll over allowance.
- In case of shallow/wedge fold skive the depth of skive tapers down at 35-degree angle leaving 1/3rd of material thickness at the tapered edge and width is twice the folding margin.

a) Approved samples

Samples are used as a reference for performing skiving operation. The samples that that are used for this purpose must be approved by the respective body and put in place for using it as guide during skiving parts or components of a given shoe. This sample must be prepared for each part that is going to be skived.

b) Approved show boards

The skiving show board is used for the purpose of defining skiving requirements including types of skiving to be carried out. These show boards helps in reducing or for minimization of the skiving rejects. The show board serves as guidance for skiving parts or components of a shoe. The parts must be skived according to the skiving specification displayed on the skiving show board.

Self-Check 6	Written Test

Name: _____ Date: _____

Time started: _____ Time finished: _____

***Instructions*:** Write all your answers in the provided answer sheet on page 23.

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

1. Define the quality standards requirement for open raw edge skiving. (1 points)
2. According to what requirements the parts or components of a shoe must be skived? (1 points)
3. What is the use of approved skiving sample? (1 points)
4. What is the use of approved skiving show board? (1 points)

Note: **Satisfactory rating – 100%**
You can ask you teacher for the copy of the correct answers.

LG #50	LO# 8 . Fuse components

Instruction sheet

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

- **Selecting components to be fused**
- **Performing fusing operation manually**
- **Performing machine fusing adjustment to the required standards.**
- **Fusing components in accordance OHS measures.**
- **Following work ticket specifications**

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

- The components to be fused together are selected
- Perform fusing operation manually according to supervisory guidance.
- Machine adjustment is performed to the required standards.
- The components are fused as per work specification and OHS measures.
- Work ticket specifications are followed according to pairs and pieces ..

Learning Instructions:

Read the specific objectives of this Learning Guide.

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the “Information Sheets 1”.
3. Accomplish the “Self-check 1”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
4. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #2.
5. Read the information written in the “Information Sheet 2”.
6. Accomplish the “Self-check 2”. Again you can request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
7. If you earned a satisfactory evaluation proceed to “Information Sheet 3”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #5.
8. Read the information written in the “Information Sheet 3”.
9. Accomplish the “Self-check 3”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
10. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #8.
11. Read the information written in the “Information Sheet 4”.
12. Accomplish the “Self-check 4”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
13. If you earned a satisfactory evaluation proceed to “Information Sheet 5”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #11.
14. Read the information written in the “Information Sheet 5”.
15. Accomplish the “Self-check 5. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
16. If your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #14.

Information Sheet 1- Selecting components to be fused

Inter-lining attaching machine (FUSING)

The word fusing is used for fixing a sugar coated fabric to a particular material for reinforcing and strengthen purpose by fusing machine. Different kinds of material are used in shoe making and leather is rated best to make a comfortable and hygienic shoe. Leather being a natural material has fibrous structure, which can have loose flesh, soft feel and thin substance. To make a good presentable shoe out of this type of material, we need to have a special treatment called reinforcing or interlining attaching. This makes the upper component durable during production and provides better shape retention to the finished shoe. In order to reinforce the concerned material, different kinds of reinforce material can be used according to their purpose, uses and benefits. Some of the material is as follows:

m. Thin leather pieces
n. Fabric
o. Sugar coated material
p. Pressure sensitive material (heat base)
q. Solvent base
r. Self-adhesive nylon or cotton tapes

The thin leather pieces are attached with the required components for necessary support by the help of suitable adhesive. It costs less, as this type of leather is available on cheap rates and remains stays comfortable due to its natural properties. Fabric is also used for interlining purpose and costs cheap. But care should be taken during selecting the adhesive for attaching it. Coating of chemical is done on fabric in form of grains called sugar coated fabric and pressed under the heated press. Care should be taken during attaching is suitable temperature according to material being used.
Pressure sensitive material is pressed under the heat and gets fixed with the upper material during lasting. Toe puff and stiffeners are cut from the thermoplastic sheet and fixed with the upper to reinforce the fore and back part of shoe.

Spray gun

General description:

Is a system for the spray distribution of water base glue; the machine consists of stainless steel spray gun assembled on an adjustable balancer, stainless steel tank with internal plastic tank.

The machine grants a quick and precise application of glue on lining, upper and toe-puff, bags and leather goods in general, carton parts and boxes, and so on.

Preparation of the machine:

The machine must be used in the following way:

- Fill the cement and the catalyst tank, if necessary;
- Open the faucet placed on the filter group in order to allow passage of air;
- Check that the tank pressure regulator is gauged between 0.5 and 1bar;
- Visually check that the cement flows from the tank to the pistol through the feeding pipe;
- Adjust the pistol

Information Sheet 3- Performing machine fusing adjustment to the required standards.

Adjustment of the spray gun

- ❖ The glue quantity can be batch by the glue batching knob placed on the gun upper part.
- ❖ Turning the knob clockwise the glue quantity to be sprayed increases.
- ❖ The automation pressure can be modified by the pressure regulator and must be set at a **max. Value of 0.8 bars.**

The width of spraying depends on:

- Distance between the gun and the material to be cemented
- Viscosity and specific composition of used glue.
- Air quantity passing between the nozzle and the counter-nozzle

To get the counter – nozzle standard adjustment, screw it completely and then unscrew half a round; it's possible to enlarge the spraying width unscrewing a further half a round, considering that the more the counter- nozzle is unscrewed, the more the atomization pressure must be increased.

How to use

- ❖ Open the air tap, start the exhaust fans and put the material to be cemented on the work bench.
- ❖ Press the switch on the gun to let the atomized glue to come out.
- ❖ The work area can be enlarged by opening the machine's lateral rims (the screws situated at the back of the machine must be unscrewed).
- ❖ In case of continual use of the gun, it isn't necessary to make the glue pipes and nozzle cleaning and the tank emptying and cleaning.
- ❖ In case of system inactivity for a period over 7 days, make the glue pipe and gun cleaning in the following manner:

1. Remove the glue from the tank and clean the same tank as follows:
   a) Close the tap on the filter – reducer group
   b) Discharge the air from the tank by the tap on the side of the cover safety valve.
   c) When the air is completely discharged close the tap.
   d) Unscrew the four knobs and remove the cover
2. Fill the tank with water
3. Increase the nozzle opening turning counter-clockwise the knob

4. Put a container under the gun
5. Open again the tap on the filter-reducer group
6. Lower to “zero” atomization pressure by the pressure regulator
7. Press the switch on the gun and let the washing water circulate to get a transparent pipe without glue residuals (eventually repeat more times the operation if the pipe doesn’t clean with one water passage only).
8. Now remove the screw and press the switch on the gun: the water comes out from the hole on the gun body to clean the sealing washers
9. Put again the screw with its relevant sealing washer and remove eventually the residual water from the tank.

The gun is controlled by two pneumatic valves placed on the machine back. Adjusting properly the flow regulators assembled on the valves it’s possible to get:

a) Delayed nozzle opening referred to the spraying air emission: screwing the valve flow regulator screw; the delay can be increased; unscrewing it the delay decreases. This way, pressing the switch on the gun, first only air comes out, then also glue.
b) Puff for the nozzle cleaning: screwing the valve flow regulator screw; the puff time for the cleaning can be increased, by unscrewing, it can be reduced. This way, when the spraying cycle is finished (that means when the needle has closed the glue nozzle) air comes out again for few seconds.

Cement re-fills in the tank:

Refill the tank with cement in the following way:

1) Close the air faucet placed on the reducer – filter group
2) Blow the air off the tank by means of the cock placed on one side of the lid safety valve
3) Once it has completely been blown off, close it again;
4) Unscrew the 4 knobs and remove the lid
5) Put the cement container inside the tank
6) Close again the lid checking that it is placed correctly
7) Open again the air faucet placed on the reducer – filter group.

Machine stopping

To stop the machine proceeds as follows:

4) Check that the working phase has been finished
5) Close the air tap on the filter – reducer group
6) Stop the exhaust fans

Information Sheet 5- Following work ticket specifications

Before starting fusing of components, work ticket with standard format and having specification should be prepared and followed. This work ticket gave clear information for the person performing the fusing operation. Thus the fusing operation should be done based on the information given in the work ticket or work ticket specification. A sample work ticket is shown below.

work ticket

Name of the organization:_____

Fuser's name:_____

Date:_____

Material:_____

Color:_____

Style/ model:_____

S.No.	Size	Pairs	Pieces		
			Upper	Lining	Interlining
	Total				

Department's signature:-

Upper components: - is the material that constitutes the outside of the footwear. It can be leather or synthetic. Work ticket providing enough information about upper components should be prepared and followed during fusing of components.

Lining components: - is the material which constitutes the inside of the footwear i.e. the materials against the foot and it can be leather or synthetic. While fusing the lining components the work ticket should be followed

LG #51	LO# 9Complete work

Instruction sheet

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

- **observing and referring problems with tools and machines for repair or correction**
- **Cleaning, checking, maintaining and storing hand tools and equipment**
- **Documenting records in standard format, and maintaining and reporting**

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

- **Problems or faults with tools and machines are observed and referred for repair or correction**
- **Hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and work standard practices**

- **Records are documented in standard format, maintained and reported to appropriate personnel following workplace procedures and requirements**

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the “Information Sheets 1”.
3. Accomplish the “Self-check 1”. Request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
4. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #2.
5. Read the information written in the “Information Sheet 2”.
6. Accomplish the “Self-check 2”. Again you can request the key answer / key to correction from your teacher or you can request your teacher to check it for you.
7. If you earned a satisfactory evaluation proceed to “Information Sheet 3”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #5

Information Sheet 1- observing and referring problems with tools and machines for repair or correction

Information Sheet 2- Cleaning, checking, maintaining and storing hand tools and equipment

SKILLS AND ACTIONS NEED TO CLEAN UP YOUR OWN WORK AREA

Cleaning and clearing techniques:

- Select and use an appropriate method for cleaning
- tools and specialist equipment
- any leakages
- Restore your work area to a safe and tidy condition
- Make sure that any materials, components, tools and equipment that you may need for the next task are set up ready for use.

Material storage techniques:

- Sort reusable equipment, components and materials from waste
- Reusable materials are correctly stored
- All tools and equipment are properly stored.

Safe disposal techniques:

- Handle and dispose of waste materials appropriately according to organizational and legal requirements
- Recognize what materials are hazardous and require special procedures

- Report any problems associated with cleaning, storing or disposing of materials and equipment to the relevant person.

Hazardous and non-hazardous materials:

- Types of waste material generated in the work area
- Know how to handle hazardous waste and reusable materials safely including:
  - Fluids
  - Adhesives
  - Solvents.
- Personal protective equipment is required and how to use it.

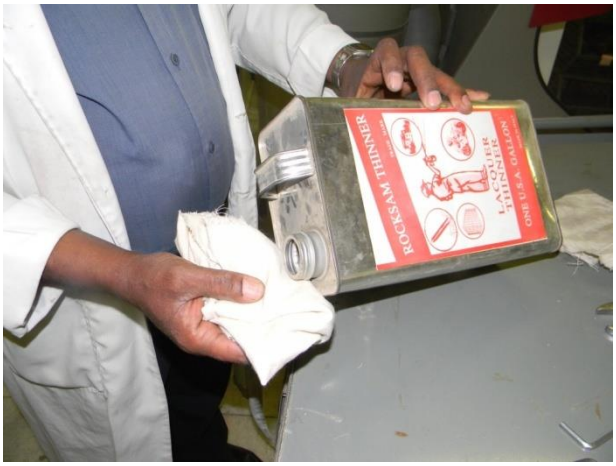
Step by Step Instructions:

Clean hand tools

Keep your hand tools in good, clean condition with two sets of rags. One rag should be lint-free to clean or handle precision instruments or components.

The other should be oily to prevent rust and corrosion.

- Use kerosene/solvent for cleaning tools



- Clean tool and keep their place




Clean floor:

Wipe off any oil or grease on the floor and check for fluid leaks. If you find any, top up the hydraulic fluid. Occasionally, apply a few drops of lubricating oil to the wheels and a few drops to the posts of the safety stands.

Points to Note

- Clean tools and equipment helps work more efficiently. At the end of each working day clean the tools and equipment you used and check them for any damage. If you note any damage, tag the tool as faulty and organize a repair or replacement.
- Electrical current can travel over oily or greasy surfaces. Keep electrical power tools free from dust and dirt and make sure they are free of oil and grease.
- All workshop equipment should have a maintenance schedule. Always complete the tasks described on the schedule at the required time. This will help to keep the equipment in safe working order.
- Store commonly used tools in an easy-to-reach location. If a tool, or piece of equipment, is too difficult to return, it could be left on a workbench or on the floor where it will become a safety hazard.
- Keep your work area tidy. This will help you work more efficiently and safely.
- Always use chemical gloves when using any cleaning material because excessive exposure to cleaning materials can damage skin.

- Some solvents are flammable. Never use cleaning materials near an open flame or cigarette.
- The fumes from cleaning chemicals can be toxic, so wear appropriate respirator and eye protection wherever you are using these products.
- When cleaning products lose their effectiveness they will need to be replaced. Refer to the suppliers' recommendations for collection or disposal. Do not pour solvents or other chemicals into the sewage system. This is both environmentally damaging and illegal.

Work area should be cleaned as per standard procedure:

Work area should be cleaned by following workplace standard procedures:

- **Dust bins for bio-degradable waste materials**

  Bio-degradable garbage (waste materials) means the garbage or waste materials that are capable of being destroyed by the action of living beings.
- **Dust bins for non-biodegradable waste materials**

  A Non-bio-degradable waste material (garbage) means the garbage or waste materials that are not capable of being destroyed by the action of living beings.
- **Cleaning of workshop**

  Clean floors and decking at the end of each shift and place all rubbish and waste in approved containers for disposal.
- **Housekeeping of cutting department**

  -Good housekeeping promotes safety and prevents accidents.

  -Do not use any equipment if it is damaged. It is important to tag it out and report it to your supervisor immediately.

  - Always practice good housekeeping before, during and after the job.
- **Housekeeping of leather stores**

  In footwear manufacturing the leather must have good quality in order to be used for footwear production. Leather stores plays a big role in taking care of the leather stored so housekeeping of leather stores must be given an emphasis.

Information Sheet 3- Documenting records in standard format, and maintaining and reporting

Reference Materials

Book:

TTLM of footwear level one on os Version 4January 2012 **Perform Pre-fabrication**

WEB ADDRESSES

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