Ethiopian TVET-System

Basic Leather Garments and Goods Production Operations LEVEL I

Based on May 2012 Occupational Standards

May, 2020

Module Title: Leather Garment & Goods Production Machine Operation

TTLM Code: IND BLG1 TTLM 0919V1

This module includes the following Learning Guides

LG23: Prepare Work and Setup a Machine
LG Code: IND BLG1 M06 LO1LG23
LG24: Operate a Machine
LG Code: IND BLG1 M06 LO2 LG24
LG25: Check Works Received from a Machine
LG Code: IND BLG1 M06 LO3LG25
LG26: Finish Work and Clean Up
LG Code: IND BLG1 M06 LO4 LG26

Instruction Sheet	LG23: Prepare Work and Setup a Machine

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

- Establishing safe working environment (cleaning and providing surface free of obstruction to get clear access of the machines)
- Machine condition checkup

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:

- Clean work area and establish safe working environment.
- Check the machine to ensure its good working condition
- Clean the machine and ready for work.

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 6.
3. Read the information written in the "Information Sheet". Try to understand what are being discussed. Ask your teacher for assistance if you have hard time understanding them.
4. Accomplish the "Self-check " in page 35.
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check). If you earned a satisfactory evaluation proceed to "Learning Guide # 24". However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Instruction #3.
6. Submit your accomplished Self-check. This will form part of your training portfolio.

Information Sheet	Establishing safe working environment in the workshop

1.1 Cleaning work area

Cleaning is the removal of all visible soil in an approved way with the use of mechanical and chemical action or both, so that all areas are cleaned and sanitized to a high standard. Cleaning is an investment in the assets of a building Maintenance is the upkeep of all body, seat interior and dashboard fittings and equipment to an exacting standard within the property so that all areas look consistently new and pristine.

Why do we clean?

There are many reasons why we clean but the most important ones are Health Regulations If your local government authority has health regulations regarding cleaning and sanitizing, then you must know these and follow their recommendations at all times. It is important when you are cleaning that you clean to a high standard that has been set for you by your supervisor or manager

1.2 Providing work surface free of obstructions to get clear access of machine

Establishing safe working environment such as cleaning and providing surface free of obstructions to get clear access of the machines should be a priority in operating leather garment and goods production machines.

Basic points on how to establish safe working environment in the workshops where these machines are regularly in use. Besides, a brief description regarding some of the leather garment and goods machineries is dealt with.

The following garment and goods machines are covered :

- Sewing Machines
- Clicking Machines
- Splitting Machines

- Skiving Machines
- Strap Cutting Machines
- Punching and Riveting Machines
- Buttoning Machines
- Edge Dyeing Machines

1.1.1 Sewing Machine

Sewing machines are of various types depending on the following factors:

a) Mechanical Configuration: there are 3 types of sewing machines in this category. These are flat bed sewing machine, cylinder bed and post bed sewing machines
b) Number of needle: single needle sewing machine, double needle sewing machine and multi-needle sewing machine (for 3 and above needles) are the major ones in this category
c) Stitch formation: lock stitch sewing machine and chain stitch sewing machine.
d) Stitch type: zigzag stitch sewing machine, and embroider are the

Among the above categories, the flat bed, cylinder bed and post bed classification is the general classification which comprises of the other categories. Flat bed, cylinder bed and post bed sewing machines can be either single needle or double needle or multi-needle sewing machines or they can be lock stitch or chain stitch machines, etc.

Flatbed sewing machines are used to sew both garment and goods articles basically easier to be flattened while those articles which are difficult to sew on flat bed sewing machines i.e. articles which can't be flattened or of cylindrical or spherical shaped articles can easily be sewn using cylinder bed and post bed sewing machines which are most common in goods and footwear workshops.

a)

b)

c)

Fig.1. Sewing machines a) lock stitch single needle flat bed sewing machine b) lock stitch single needle cylinder bed sewing machine and c) lock stitch single needle post bed sewing machine.

Creating Safe Environment for Stitching

So as to create safe working environment upon using sewing machine, the following points should be taken into consideration:

- A working area of 1meter is to be kept free both in front of and behind the machine while it is in operation, so that it is always easily accessible.
- Objects should not be left on the table (working area of the sewing machine) while adjusting the machine settings or on operation. This is because; during operating the machine, objects will be trapped or be hurled out and cause injury.
- Make sure that the machine is equipped with take-up lever guard and belt guard to avoid injury by the movement of the take-up lever and the turning drive belt respectively. Besides, if double needle machine, make sure that there is finger guard so that danger of injury by the moving needle is avoided.
- If post bed sewing machine, should not be operated without support to avoid danger due to the top heavy sewing head i.e. machine can fall over backwards when being tilted.
- Read the instruction manual shipped with the machine by the manufacturer.

Cleaning the machine

As you clean the machine, it is best to clean one area at a time. Remove only the parts that are involved and be sure to note where each part is from, its position, and which side is top.

Fig. Removing parts for cleaning – remove all parts possible in order to clean the machine thoroughly. Keep the parts in order to make it easier to replace them.

When removing parts, remember that, “left is loose and right is tight” on practically all screws and bolts. When using a screw driver, put the pressure on the push, not on the twist. If a screw will not loosen easily, soak it with cleaning fluid. Then set the screw driver in the slot and tap sharply with a hammer before attempting to loosen. The screwdriver blade should be as wide as the slot in the screw is long. Always use a wrench—not pliers—on bolts.

First, remove the needle, presser foot, slide plate, throat plate, bobbin case, and the face plate (if it comes off). Put them in the pan and cover with cleaning fluid. Set aside to soak while cleaning other areas. Next, wrap the motor (if necessary) and wire with plastic wrap to protect them from oil and cleaning solvent. Be sure the machine has been unplugged!

Now, it is time to begin work to clean the machine head. With a sharp pointed tool, clean out all oil holes. Then, with your hand, turn the hand wheel to run the machine. At the same time, squirt cleaning fluid into all the oil holes, on all bearings and on all other places where one part rubs against or turns within another.

Fig. Bobbin area (if possible, remove the bobbin case to remove all lint and stray threads)

If the machine begins to run hard, it is a sign that dirt or lint has jammed inside a bearing. Continue running the machine and flushing with cleaning fluid until the dirt and gummed oil are washed from the bearing. When the machine runs easily again, tip the head and flush the parts underneath the machine—all oil holes, bearing and places that rub against or within another. Continue running the machine by hand until it functions smoothly.

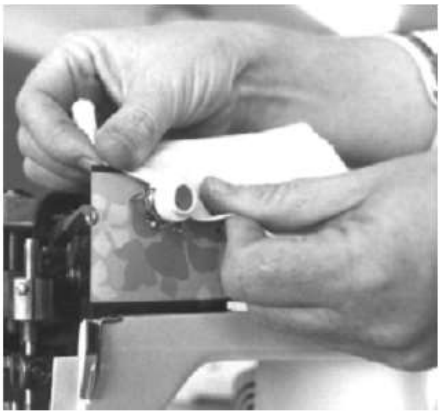


Fig. Upper Thread Tension – pull a piece of cloth soaked in solvent back and forth between discs to clean.

To remove any remaining dirt and oil, dip a cloth or brush in cleaning fluid and scrub all parts of machine that can be reached. Use a needle, knife or other pointed instrument to dig or scrap away any remaining gummed dirt or lint in the feed dog, around the bobbin case, and in other areas. Check the lower tension of the bobbin case and the upper thread tension discs. Pull a thread under the tension of the bobbin to remove dirt. Pull a piece of cloth soaked in cleaning fluid back and forth between the discs of the upper tension. Repeat with a dry cloth to be sure no lint or thread is caught between them.

Areas Needing Attention during Cleaning the Sewing Machine

In addition to general cleaning, three areas need special attention. They include the hand wheel bearing and the clutch assembly, the needle-bar and presser foot, and the hook and bobbin areas assembly. When the hand wheel assembly gets gummy and dirty, it must be cleaned for the clutch to work properly. The clutch disengages the needle-bar when winding a bobbin. Some new sewing machines refill the bobbin in its regular position and a clutch is not necessary. In such machines, it is not often necessary to remove the hand wheel to clean this area.

i. Bobbin and Hook Area

Lint is the primary offender in this area. The bobbin case can be removed on all makes of machines. Use a dry brush to clean out all lint. Remove any thread that may be wound up around the hook shaft. On many machines, the hook assembly can also be removed for more complete cleaning. Place one drop of oil on the exterior perimeter of the hook and the bobbin race to lubricate if after cleaning

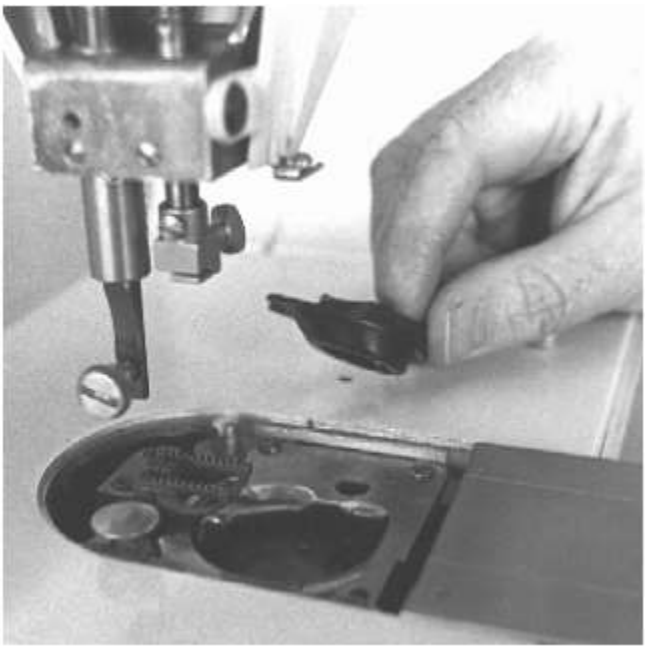


Fig. Bobbin Area – clean carefully to remove lint using a soft brush. Tweezers may be helpful in removing stray threads.

ii. Face Plate Area

The face plate on most machines is held in place with one or two screws. By removing these, the plate can be easily removed for cleaning of the needle-bar and presser foot bar. On some of the newer machines, the face plate is a part of a housing that is mounted on hinges, which makes it easy to move the entire housing away from the bars and mechanisms behind it. No other parts need to be removed for cleaning in this area. First use a dry brush to clean out all lint and other foreign material. A small piece of cloth with a little solvent on it can be used to clean the needle-bar and presser bar of any gummy grease. After thoroughly cleaning, place a drop or two of oil on each shaft where it slides

through the housing. Oil all other moving parts according to your instruction book before replacing face plate.

Fig. Faceplate Area – remove lint from faceplate area using a soft brush. A cloth dipped in solvent can be used to remove grease and grime.

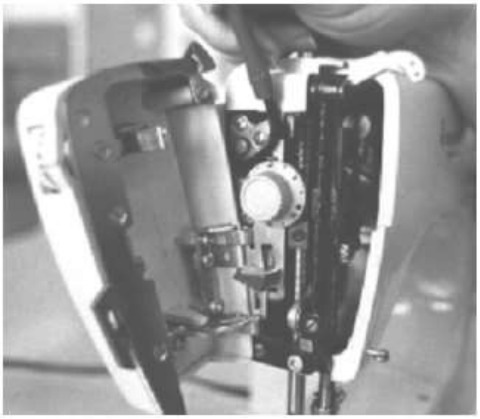


Fig. Faceplate Area – Place a drop or two of oil on moving parts where they slide through a housing or move against each other.

iii. Hand wheel Area

To remove the clutch and hand wheel, loosen the small screw in the face of the locknut (the locknut is the part that is turned to the left to release the clutch for operating the bobbin winder). Next, unscrew the locknut, and remove the washer and hand wheel. Most machines will have a washer that looks like one of the three shown. Some makes will be slightly different. Notice the position of the washer so you can put it back in the same position. You may want to make a small scratch to identify the side that goes “out”. The hand wheel should slide off the shaft easily. If the machine is driven by an external belt, this belt will have to be removed before the hand wheel will come off. (If the machine has an internal drive belt or the hand wheel.

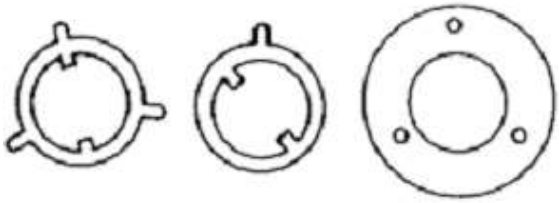


Fig. Different types of adjusting washers

Replace the parts you have removed and skip this area.) Gear driven machines will have a gear on the inside of the hand wheel.

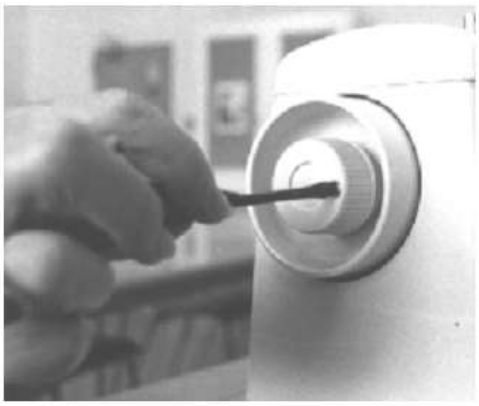


Fig. cleaning the hand wheel

Clean the hand wheel, washer, and shaft. Lubricate the shaft with two drops of oil and place a small amount of grease on all gears. Reassemble the hand wheel and clutch. If the clutch fails to operate, either because it will not hold or fails to release, remove the locknut again and turn the washer one half turn (180^{o}) and reassemble. The clutch should then work properly. After thoroughly cleaning these areas, reassemble the machine and run it by hand. It should run smoothly if all parts have been replaced correctly. Do not plug the machine in until all the cleaning fluid is dry.

iv. Air Filter (Regulator)

The water container of the regulator (filter) empties itself automatically when the compressed air hose is removed from the air filter/regulator. Unscrew the water container, screw out filter and clean filter with compressed air or isopropyl alcohol. Finally, screw filter back in and screw on water trap.

1.1.2 Clicking Machine (Hydraulic Press Cutting Machine)

Hydraulic clicking press is extensively used for cutting leather goods components ranging from the smallest sizes to medium in huge quantities. It is used to cut (click) components from leathers, linings, foam and reinforcements materials with clicking dies.

Specifications:

a. Maximum cutting Power - 16-25 tones.
b. Maximum Stroke - 90mm.
c. Cutting Table width – 800mm x 400mm / 1000mm x 500mm.
d. Arm width - 300mm to 500mm.

Fig. Hydraulic Press Cutting (Clicking) Machine

Cutting Die Knives

Cutting die knives are of various types and classified as follows:

i. **Knives as per Height** – 19 mm, 32 mm and 50 mm height knives are available for various purposes. Normally19 mm die is used for leather upper and lining cutting 32 mm and 50 mm dies are normally used for synthetic cutting, layer cutting or cutting thick materials.

ii. **Knives as per Edge** – Single edge and double edge knives are available. Using Double edge die we can cut right and left component from the same die which reduces the die cost.

iii. **Straight Knife and Decorative Edges** – Knife edges can be straight or gimped as per the design.

iv. **Perforated Knives** – Knives can be perforated. It can be perforated for punched designs.

Machine Condition Checkup

- Check the pressure knobs of the cutting machine and adjust as per the need
- Check cutting board for plain
- Check the clicking/Cutting knives/dies for
  - Sharpness
  - Bends
  - Breakage
  - Check punches and pickers
  - Check size notches

1.1.3 Splitting Machine

Finished leathers available from tanneries will have more thickness than the requirement for making leather goods. Since leather goods are made with different thickness, it is necessary to split the leather components according to the required thickness. This can be achieved only with the help of a splitting machine.

Fig. Splitting Machine

The following are the major and common parts of the splitting machine and their respective functions:

- **Main switch:** To supply electric power to the machine
- **Control switches (on/off switches):** starts or stops the machine
- **Speed rate switches:** increases the speed rates for splitting
- **Partial splitting switch:** enables to do partial splitting
- **Partial splitting length adjusting knob:** helps to split the components partially to required length
- **Thickness indicating meter:** indicates splitting thickness
- **Thickness adjusting wheel:** used to adjust to required splitting thickness
- **Band knife:** splits leather components
- **Grinding unit:** used to sharpen the blade for accuracy of splitting
- **Optical viewing system:** used to check the knife bevel whether it touches the splitting line
- **Upper driven guide roller**: enables to split thicknesses ranging from 0.5mm to 12 mm Lower feed roller feed the components for splitting
- **Guide bar:** used to split thickness up to 0.2mm
- **Feed roller pressure adjusting knobs:** used to adjust the pressure of the feed roller for uniform splitting
- **Exhaust units:** used to collect scraps and dust during splitting
- **Pilot lamp:** provides sufficient light during splitting
- **Treadle:** enables to pull out the stuck components between the rollers
- **Safety switch**: stops the machine if troubles develop suddenly

Cleaning the Machine

Exhaust unit which is used to collect scraps and dust during splitting should be cleaned daily in such a way that:

- Empty the scrap container each time that it is requested on the control panel video message.
- Clean the entire machine of processing scrap.
- Clean the scrap filter removing the knobs that secure it.
- Clean the dust collection bag kept in position by means of elastic edging.

1.1.4 Skiving Machine:

It helps to reduce thickness of the leather components at the edges for easy folding. Only skilled persons can operate this machine as the quality of skiving depends on various adjustments and operation techniques. Different types of skiving viz. parallel skiving, channel skiving, taper skiving and fine edge skiving can be achieved using appropriate presser foot. The skiving can be done to a width of 3mm to 50 mm.

Two types of skiving machines are available in footwear industry are:

A. Single Step Skiving Machine

B. Three Step Skiving Machine

A. Single step skiving machine

Single step skiving machine is called so because; mechanism allows only one type of skiving at a time in one setting. The machine is having a cylinder arm with attached platform allows space for the skived material after skiving. The machine is installed on table and motor is fixed beneath, which is connected to the pulley with the help of V-belt. The power is transmitted through V-belt to the machine mechanism and starts functioning. Foot paddle is fixed under the table and pressed for the necessary operation. The paddle is connected with the gear assembly of bottom feed roller and only by pressing the paddle, the bottom feed wheel starts functioning.

Fig. single step skiving machine

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 to obtain 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.

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.

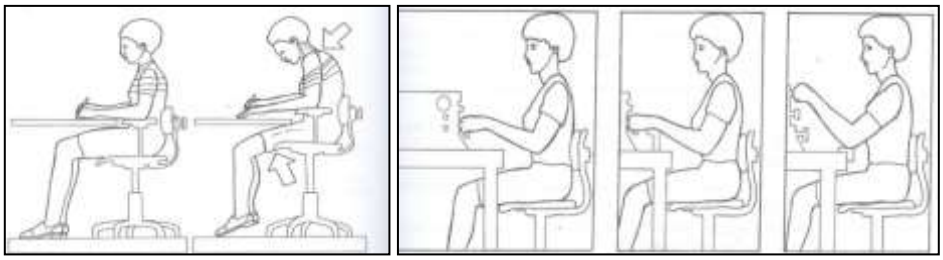
B. Three Step Skiving Machine

Three step skiving machine is called so because, the mechanism involve in it, allow the setting of all three kinds of skiving at a time. The machine is having a cylinder arm attached with the bed of the machine, on which, skiving width guide and pressure roller assembly is fixed. Under the top assembly (pressure roller) bottom feed roller (metallic) is fixed. The machine is fixed on the table and motor is fixed under it. The paddle is placed on the ground under the table and gets connected with the top mechanism. Hence by pressing the paddle machine can be operated after switch on the machine and necessary skiving may be obtained. The other foot paddle is also fixed under the machine and connected with the numerical digits (1 2 3) situated on the top of the vertical shaft. These numerical digits are exists in the mechanism to allow particular types of skive to be set at a time.

Once the machine is adjusted for all three types of skiving for a particular material, it does not require any readjustment, till the material specifications are changed. The numbers (1 2 3) are displayed on the front of the cylinder arm & signify the adjustment of machine for a particular skive (raw, fold and underlay).

Ergonomics of skiving (sitting)

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.

Cleaning the Machine

The machine must be daily cleaned from the normal working scraps using compressed air and cleaning the working area (guide, knife feed roller and its hoider-set). Pour in lubricating oil for the blade into the special container. The scrap box (waste basket of the machine) can be cleaned as follows:

- Switch off the machine and open the door of the scrap box
- Take out and empty the waste basket
- Remove the material which has accidentally come out of the basket before removing the filter.
- Once the internal case is thoroughly clean, take out the filter.
- Clean the filter by carefully following the instructions printed on its side
- Clean that no machining waste material has accidentally fallen into the underlying fan. If it has, clean it carefully.
- Correctly install the filter again (see assembly drawing) as well as the basket and properly close the door.

N.B: the filter should be changed every TWO MONTHS.

1.1.5 Strap cutting machine:

Strap cutting machine is mainly used to cut straps for piping, belts and shoulder bag handles. It works by means of circular steel knives and rotating nylon counter knife. The feeding of the material made by hand till the point of intersection between knife and counter knife. The machine is equipped with a works station and controls as shown in the fig below.

The strap (stirp) cutting machine has been conceived and planned to cut in strips of various widths natural or synthetic material, used in the manufacturing field such as the material used in the manufacturing of shoes, leather goods, trimmings, clothing and others except the ferrous and porcelain ones. The machine should not be used for operations different from the cutting and for all those materials whose working could causes explosions, fires and emissions of noxious substances.

Fig. Strap Cutting Machine

Strap cutting machine parts and their functions

- Main switch: supplies electric power to the machine
- Circular knives: To cut straps
- Circular spacers: To adjust for required widths of the straps
- Wipers: To prevent the cut straps rolling between the knives
- Steel roller: To fix circular knives and spacers
- Rubber feed roller: To feed leather for cutting straps
- Guide: To feed the leather straight at 90 degree angles
- Clutch handle: To make the steel roller and feed roller revolve

- Scrap box: To collect scraps

Machine Condition Checkup

If the engine does not start even if the start up button is pressed, control:

- The line – be sure there is power.
- The front and back screens – see they are correctly placed and fixed
- Limit switches – check they are not damaged
- Transformer's enter and exit fuses – disconnect the plug, open the gate and check they are not damaged

The engine works but even if the pedal is pressed, the machine does not run, then check:

- The insertion lever chain – the clutch – in case it is loosened adjust it by means of the hook nut and counter nut.
- Belt drives – if they are loosened adjust them by means of the anchoring bar of the engine.

If the machine does not work even after checking all what is described above, apply to the seller or the manufacturer of the machine.

Cleaning the Machine

The scrap box should be cleaned every time after work. The front screen of the machine (see fig.) should be cleaned whenever disassembled. But never use solvents to clean the front screen.

1.1.6 Punching and Riveting Machines

Riveting machines are used to automatically set (squeeze) rivets in order to join materials together. The riveting machine offers greater consistency, productivity, and lower cost when compared to manual riveting. Automatic feed riveting machines include a hopper and feed track which automatically delivers and presents the rivet to the setting tools which overcomes the need for the operator to position the rivet.

The downward force required to deform the rivet with an automatic riveting machine is created by a motor and flywheel combination, pneumatic cylinder, or hydraulic cylinder. Manual feed riveting machines usually have a mechanical lever to deliver the setting force from a foot pedal or hand lever. Riveting machines can be sub-divided into two broad groups — impact riveting machines and orbital (or radial) riveting machines.

Impact riveting

Impact riveting machines set the rivet by driving the rivet downwards, through the materials to be joined and on into a forming tool (known as a rollset). This action causes the end of the rivet to roll over in the rollset which causes the end of the rivet to flare out and thus join the materials together. Impact riveting machines are very fast and a cycle time of 0.5 seconds is typical.

Fig. Impact Riveting Machine

Orbital riveting

Orbital riveting machines have a spinning forming tool (known as a peen) which is gradually lowered into the rivet which spreads the material of the rivet into a desired shape depending upon the design of the tool. Orbital forming machines offer the user more control over the riveting cycle but the trade off is in cycle time which can be 2 or 3 seconds.

There are different types of riveting machines. Each type of machine has unique features and benefits. The orbital riveting process is different from impact riveting and spiral form

riveting. Orbital riveting requires less downward force than impact or spiral riveting. Also, orbital riveting tooling typically lasts longer.

Orbital riveting machines are used in a wide range of applications including brake linings for commercial vehicles, aircraft, and locomotives, textile and leather goods, metal brackets, window and door furniture, latches and even mobile phones. Many materials can be riveted together using orbital riveting machines including delicate and brittle materials, and sensitive electrical or electronic components.

The orbital riveting process uses a forming tool mounted at a 3 or 6° angle. The forming tool contacts the material and then presses it while rotating until the final form is achieved. The final form often has height and/or diameter specifications.

Pneumatic orbital riveting machines typically provide downward force in the 1,000–7,500 lb (450–3,400 kg) range. Hydraulic orbital riveting machines typically provide downward force in the 6,000–50,000 pounds (2,700–23,000 kg) range.

Fig. Orbital Riveting Machine

Riveting machines are used in a wide range of applications including brake linings for commercial vehicles, aircraft, and locomotives, textile and leather goods, metal brackets, window and door furniture, latches and even mobile phones. Many materials can be riveted together using riveting machines including delicate and brittle materials, and sensitive electrical or electronic components.

1.1.7 Buttoning Machines

This machine is used to sew button holes and attach buttons on the leather articles (garment and goods products).

Fig. Buttoning Machine

1.1.8 Finishing machines/ Edge Dyeing Machine

Edge dyeing machine is suitable for painting any type of edge of handbags, wallets and leather goods in general. With a simple application it is also capable of making an ornamental edge giving to the piece to be painted a pleasant decorated appearance.

Fig. edge dyeing machine

Machine Condition Checkup

Check that the inking roller is turning in the anticlockwise direction; if it should turn in the opposite direction, remove the plug from the main line, and invert one of the wires inside the plug taking care not to touch the earth wire.

1.3 Establishing Safe Working Environment

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 on the safety and health of workers and can easily be improved.

i. 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;

ii. 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 ceilings 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.

iii. 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.

a) 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.

b) Permanent hearing loss

Eventually, after you have been exposed to excessive noises for too long, our 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.

c) 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:

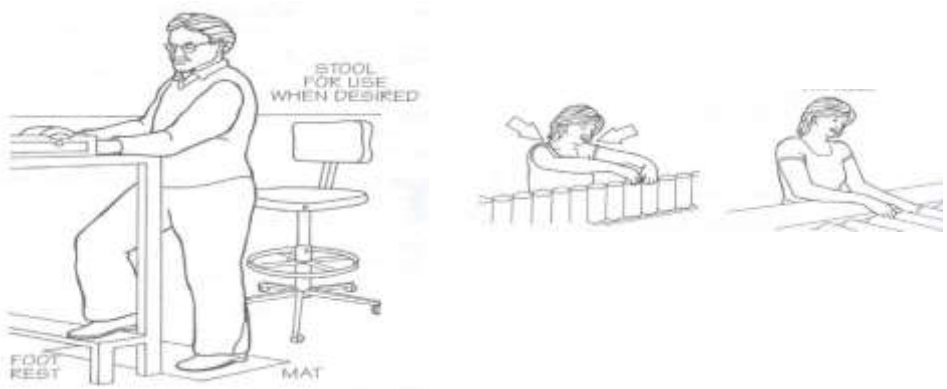
- Decrease of coordination and concentration.
- Noise increases stress, which can lead to a number of health problems, including heart, stomach and nervous disorders. Noise is suspected of being one of the causes of heart disease and stomach ulcers.

N.B: all the safe environment factors discussed for splitting machine works for all garment and goods machines and their respective workshops (work areas).

iv. Ergonomics of splitting (standing)

- 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.



1.4 Checking A Machine for good Working Condition

The machine is equipped with a control panel (a microprocessor) which controls the overall operation of the machine. Emergency signals ⚠ flash on the control pannel which means that the machine is in meergency state and therefore intervention is immediately required to esure 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.

Worn bleds, loos blade, emergency active, open guard, scrap box full, dirty converyor roller, blade motor alarm, transport motor alarm, sharpening motor alarm, fan 1 alarm, open line contactor, machine maintenance in progress, all of these have their respective signal that flashes on the control pannel for the corrective actions to be carried out.

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.

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	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Explain the difference between flatbed sewing machine and cylinder bed sewing machine in accordance with their use? (5pts)
2. Discuss the focus areas of sewing machine cleaning (5pts)
3. Discuss the major and common parts of splitting machine (5pts)
4. Explain the use of skiving machine (5pts)
5. Explain the classification of cutting dye knives of the hydraulic press cutting machine (clicking machine) (5pts)

Note: **Satisfactory rating - 25 points** **Unsatisfactory - below 25 points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. _____
   _____
   _____

Instruction Sheet	LG24: Operate a Machine

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

- Connecting a machine safely and switching it on
- Alignment of work piece
- Machine operation in accordance with standard industry practice and OHS requirements
- Appropriate feeding of work piece to a machine
- Regular checking/monitoring of performance of the machine

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:

- Connect the machine safely to power and follow correct 'power-on' procedure.
- Correctly align work-pieces to the machine and feed appropriately into the machine
- Operate the machine in accordance with standard industry practice and OHS requirements
- Conduct regular checking of finished components

Learning Instructions:

1. Read the specific objectives of this Learning Guide.

2. Follow the instructions described in number 3 to 10.
3. Read the “Operation Sheet 1” and try to understand the procedures discussed.
4. Do the “LAP test 1” in page 9 (if you are ready). Request your teacher to evaluate your performance and outputs. Your teacher will give you feedback and the evaluation will be either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advice you on additional work. If your result is satisfactory, you can proceed to Operation Sheet 2.
5. Read the “Operation Sheet 2” and try to understand the procedures discussed.
6. Do the “LAP test 2” in page 20 (if you are ready). Request your teacher to evaluate your performance and outputs. Your teacher will give you feedback and the evaluation will be either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advice you on additional work. If your result is satisfactory, you can proceed to Operation Sheet 3.
7. Read the “Operation Sheet 3” and try to understand the procedures discussed.
8. Do the “LAP test 3” in page 27 (if you are ready). Request your teacher to evaluate your performance and outputs. Your teacher will give you feedback and the evaluation will be either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advice you on additional work. If your result is satisfactory, you can proceed to Operation Sheet 4.
9. With similar fashion, read the Operation Sheets 4, 5, 6, 7 & 8 and try to understand the procedures discussed in each operations.
10. Do the “LAP tests 4, 5, 6, 7 & 8” in pages 30, 34, 38, 49 & 52 respectively (if you are ready). Request your teacher to evaluate your performance and outputs. Your teacher will give you feedback and the evaluation will be either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advice you on additional work on each operations. However, if your result is satisfactory, you can proceed to Learning Guide # 25.

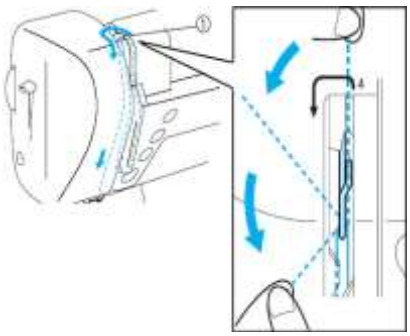
Operation Sheet-1	**Operating Sewing Machine**

Before preceding to the stepwise explanation of the stitching operation certain basic preparation operations and adjustments should be discussed.

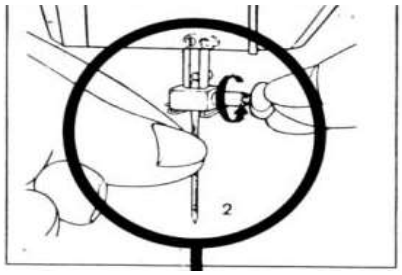
1. Preparation Operations

1.1. Fixing Needle:

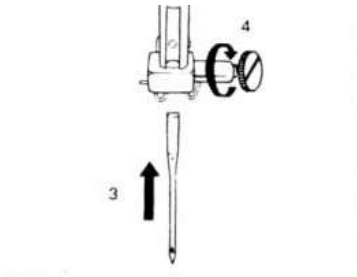
a. While standing in front of training sewing head, rotate gangs hat until take-up levers Are in up position, this is called color change position



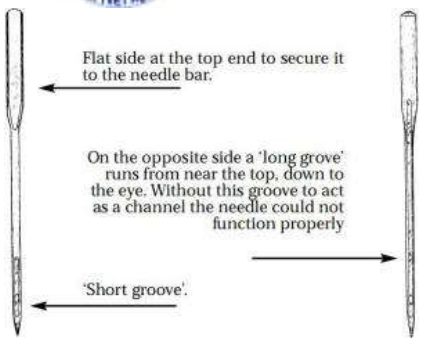
b. Using needle screwdriver, loosen needle set screw.



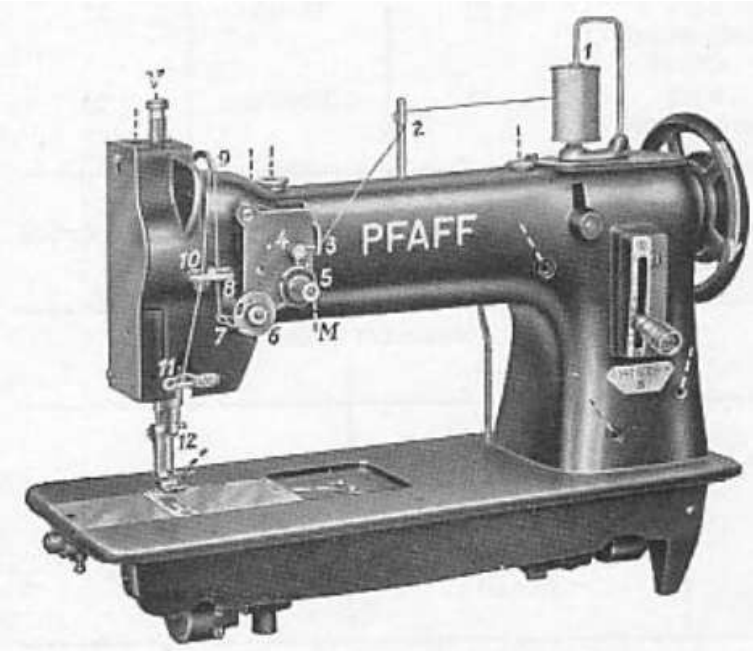
c. Remove and discard old needle.



d. Insert new needle correctly. (Groove facing front and scarf



1.2. Threading the machine

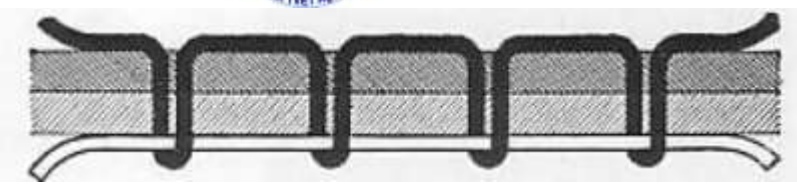


Pass the thread from spool 1 (figure above) through the holes in stud 2 and thread guide 3, around thread retainer 4, clockwise around and between tension discs 5, under thread controller disc 6, through thread check spring 7,

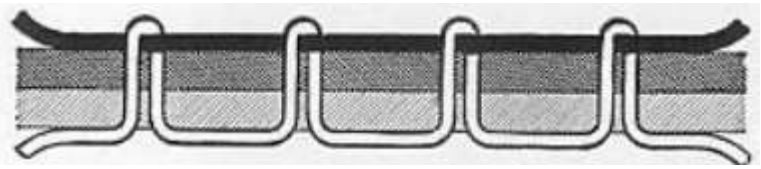
up and through thread guide 8, from right to left through the hole in take-up lever 9, then down and through thread guides 10, 11, and 12, and then left to right through the needle.

1.3. Adjusting thread tension

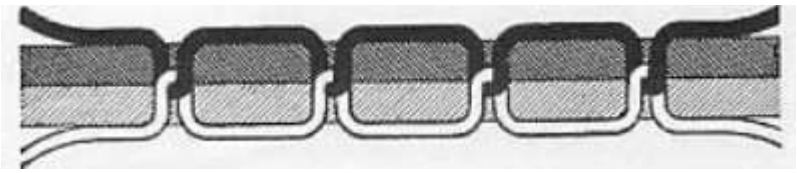
To adjust the needle thread tension (upper tension), turn the tension nut M (*see figure of threading the machine*) clockwise for more tension, or counterclockwise for less tension. If the upper tension is too loose, the bobbin thread will draw the needle thread down so that if forms small kinks on the underside of the material (see fig. below)



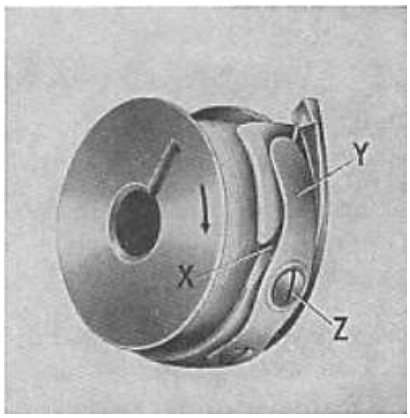
If the upper tension is tight, the bobbin thread will be pulled up or needle thread will break.



Both tensions are correctly balanced if the needle and bobbin threads interlock in the center of the material as shown in the figure below:



To adjust the lower tension, take the bobbin case out of the machine and regulate the tension by turning screw Z (see fig. below) with the hook screwdriver, as appropriate.



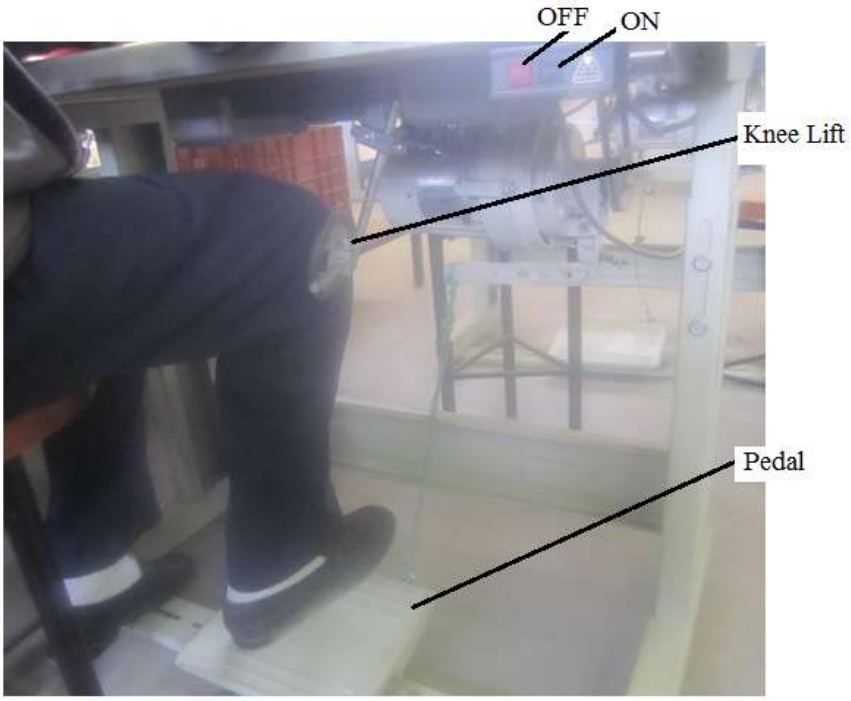
Turn this screw clockwise for a tighter tension, or counter clock wise for a looser tension. The tension is correct if a noticeable resistance of spring Y (see fig. above) has to be overcome when pulling the thread out of the bobbin.

2. Sewing Operation

Make sure the machine is connected to the main line.

Steps:

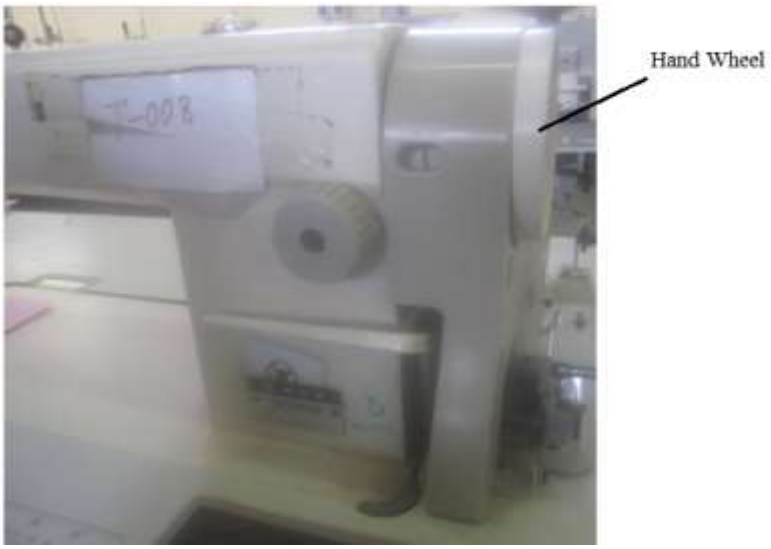
1. Start the machine pushing the start button (the black “ON” button)



2. Raise the presser foot and needle with a combined action of knee lift and hand wheel (i.e. push the knee lift away and hold which lift the presser foot and turn the hand wheel till the needle raises up). So the material to be sewn can easily be laid down (inserted).
3. Lay the material (or the components) to be sewn

4. Release the knee lift to lay down the presser foot. *(See the figure in step 1)*

5. Turn the hand wheel to form the first lock stitch



6. Press the pedal down front and continue sewing. *(See the figure in step 1)*

7. Guide the material with your hands

8. Turn off the machine pushing the red (OFF) button and clean and oil the machine upon completion of sewing operation.

LAP Test -1	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 3 hours.

Task 1: Insert sewing needle according to the procedures.
Task 2: Perform threading of the sewing machine
Task 3: Demonstrate winding and inserting bobbin
Task 4: Demonstrate needle thread tension adjustment
Task 5: Demonstrate presser foot height adjustment
Task 6: Perform stitching using scrap leather piece

Operation Sheet - 2	**Operating Clicking Machine**

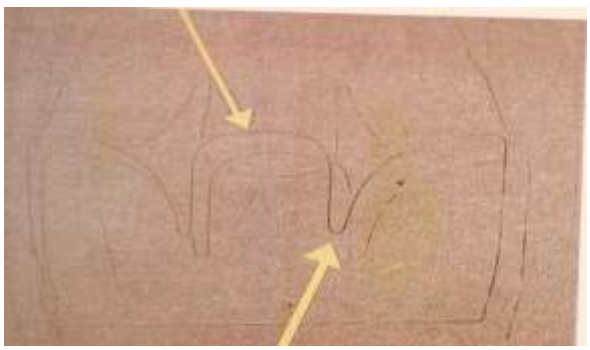
Adjustments (Setting the Machine)

Setting the Arm Stroke

- Place the knife on the clicking board.

Setting of Pressure Control

- Turn the arm stroke adjustment control: Clockwise for down position and Anti clockwise for up position. Approx. 10 mm to 15 mm clearance is required depending on the substance of the leather.

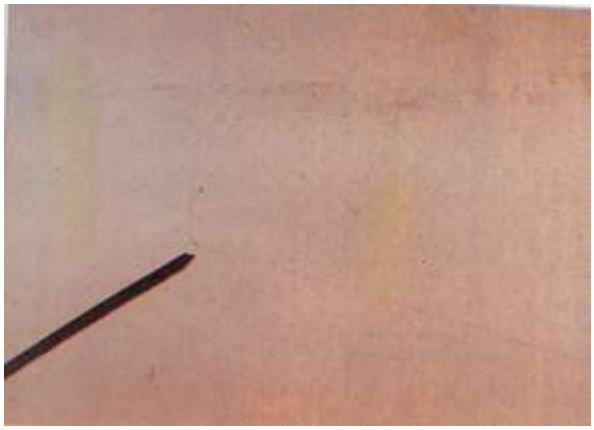


- Place 1 piece of thin cardboard on the clicking board.

- Place the small knife on the cardboard.

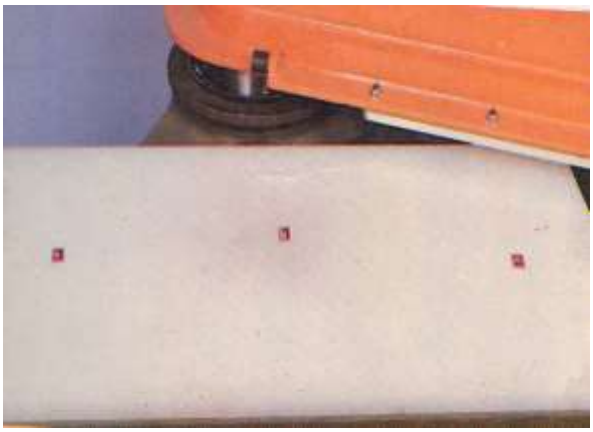
- Test the machine for cutting depth.

- If the machine has been set correctly it should cut through and only show a very small imprint on the cutting board.



- If the knife cuts deeply into the nylon board reduce the pressure.

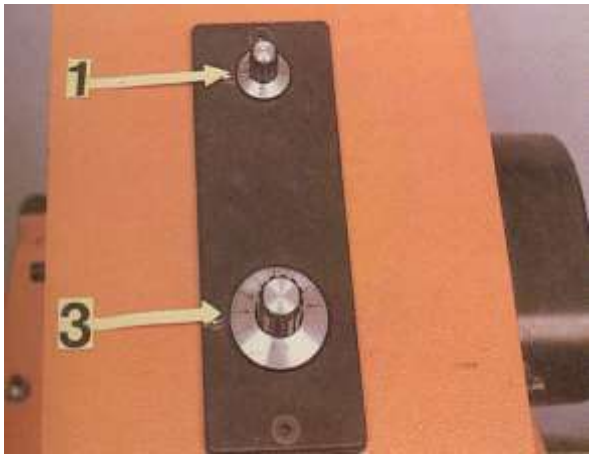
- Test the cutting depth in three different areas of the board.



- This system can only be used if the cutting block and the aluminum plate are in good condition.

- If this system does not work adjust the cutting stroke pressure until you have minimum knife penetration into the board.

- Depth of the cut can be altered by button no.1 and button no.3.

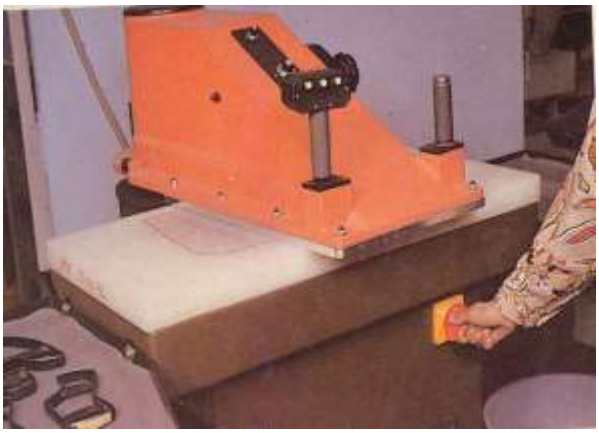


- Button No.3 or heavy cutting stroke button should be operated when an operator is using a large knife with heavy leather.

- The pressure control adjustment is completed by turning the lower potentiometer clockwise for extra pressure and anticlockwise for less pressure.

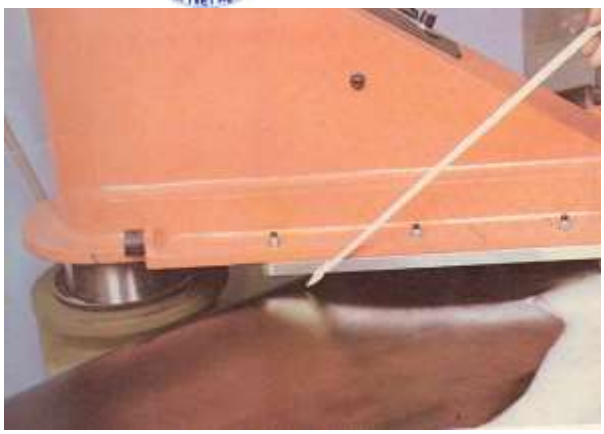
Operating the Machine

- Turn the machine on and wait for 2 to 3 minutes to allow the machine to circulate the oil.



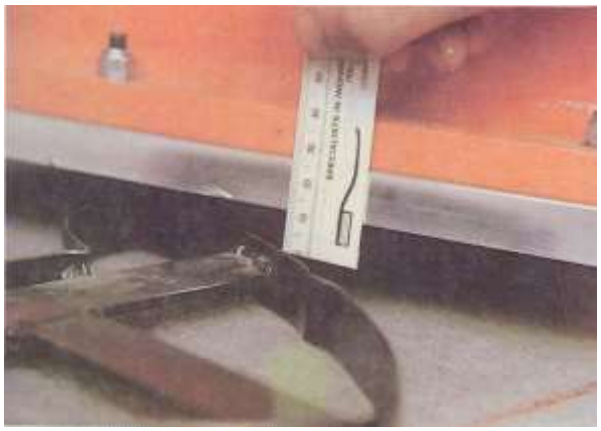
- Select the leather and place it in the well at the back of the machine

- Bring the leather over the cutting board; care should be taken not to scratch the leather grain surface on the aluminum plate.



- Select the required knife

- Adjust the pressure stroke being, if required, this should be a minimum of 10 mm above the knife and no more than 15 mm.



- Adjust the pressure of the cutting depth if required. Swing the beam over the center of the knife.

- Press the selected button on the left hand control at the same time as you press the button on top of the right hand control. Hold the button down until you feel the press coming up.

- Swing the beam away from the knife.

- Pick up the knife and the cut component

- Place the cut component in an orderly fashion on the side bench.

- Repeat the same procedure, change knives when required.

- On completion of cutting, replace knife and leather.

- Turn off machine. The machine will rest on the cutting block when turned off.

- Pack and bundle cut components

- Clean down machine.

LAP Test - 2	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 3 hours.

Task 1: Demonstrate how to adjust the arm stroke of the clicking machine.

Task 2: Operate the machine

Operation Sheet - 3	Operating Splitting Machine

Adjustments

1. Adjust the gap between the upper roller and the band knife according to the product specification or material thickness.
2. When the band knife is blunt grind it using the sharpening button which is connected to the sharpening stone.
3. 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

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

Upper roller and fixed foot

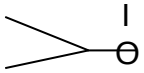
The use of the fixed foot or the upper conveyor roller depends on the material to be processed. The foot is recommended for very precise workmanship and for materials that have no sliding difficulty; permitting the processing of minimum thickness of 0.2 millimeters. While the conveyor roller is used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

Operating the Machine

Make sure the machine is connected to the main line (power line)

Steps:

1. Start the machine pushing the green button (I) shown in the figure below.

Fig. the control pannel with start (I) and stop (O) buttons

2. Set the required thickness turning the wheel locate at the top of the machine clockwise or anti-clockwise (decreasing or increasing). The increment or decrement value will be displayed in the control panel.

Fig. wheel to adjust splitting thickness

3. Insert component pieces to be split
4. Press the foot pedal located bottom part of the machine
5. Check for the quality of the split (thickness, damages, etc) component
6. Stop the machine pushing the Stop (O) button

7. Clean and lubricate the machine.

LAP Test - 3	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 3 hours.

Task 1: Demonstrate how to adjust splitting machine.

Task 2: Operate the machine

Operation Sheet - 4	Operating Skiving Machine

Adjustments

It is necessary to make some adjustments according to the skiving requirements.

a. When the desired skiving thickness 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.
b. When it is necessary to change the feeding speed, please change the position of the v. belt on the belt pulley.
c. 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.
d. 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.
e. 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.

Adjusting feed roller

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 passed via. The minimum distance between

the roller and the bell knife should not be less than 0.5 mm. However, this distance may vary accordingly.

Operating the Machine

Steps:

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

LAP Test – 4	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 3 hours.

Task 1: Demonstrate how to adjust skiving machine.

Task 2: Operate the machine

Operation Sheet - 5	**Operating Strap Cutting Machine**

Adjustments

Assembling and adjusting the knives

Before assembling the knives of the machine, always put off the main switch (red button).

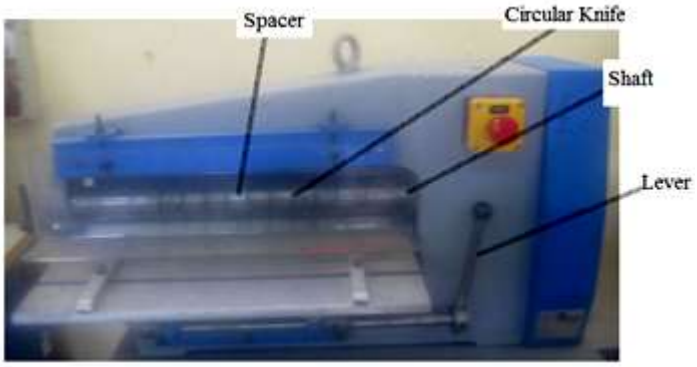


Fig. strap cutting machine head

Steps to assemble adjust the knives:

1. lower the lever
2. take off the front and back screens (transparent protective screen)
3. Loosen the ring-nut, clockwise, by means of the spanner supplied with the machine
4. unscrew the two screws, take off the support and the ring – nut
5. Loosen the screw situated on the support of the back strippers.
6. Rotate the small bars pushing them from the upper part.
7. Insert the knife on the shaft.
8. Insert the spacer on the shaft.
9. Insert the other knives and the spacers on the whole shaft (as long as the shaft is completely full); the last spacer must stick out of the shaft by 5 to 10 mm.
10. Screw the ring – nut counterclockwise, without locking it.
11. Assemble the support, screw the two screw and lock the ring – nut by means of the spanner supplied with the machine
12. Insert the strippers between one knife and the other, letting them slide on the small bar
13. Rotate the small bars drawing them from their upper parts so that the strippers tip touches the spacer, then lock the screw
14. Raise the lever again

15. Adjust the nylon counterknife with the two adjusting screws. The knives must incise into the counterknife by 3 – 5 tenths of mm deep.
16. Assemble the screens and place them

Operating the Machine

N.B. the machine is equipped with a working and control station situated in front of the control panel. The feeding up of the material can be manual or automatic.

Make sure the machine is connected properly to the main line. Push the black button to ensure electricity supply to the whole machine. And push the green button to start up the engine.

N.B. the red button is pushed to stop electricity supply on boar the machine.

Step 1: start up the machine as described above without pressing the pedal.

Step 2: drive the material to cut into the slot below the front screen, arranging it on the work bench. Press the pedal and push the material so that it can be conveyed. At the exit of the material check the cut; if it is not satisfactory, adjust the nylon counter knife again as long as the cut is perfect.

Step 3: after cutting the material, either in pieces or continuously, release the pedal, drive other material into the slot and repeat step 2.

Modification of the cutting width

Act as described above from steps 1 to 6. Take off the knives and the spacers, and then insert the new measurements.

N.B. always handle the knives sideways, never from the cutting edge. Either order the d/f measurements of the spaces directly to the manufacturer or adjust them into loco. In the latter case the diameters reporter on the specification table should be respected; remember that the extent of the spacers width with reference to the cut that has to effectuate must be as smaller as the knife thickness.

Example,

A 20 mm cut with knife 1mm thick spacer measurement is 19mm.

LAP Test – 5	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 3 hours.

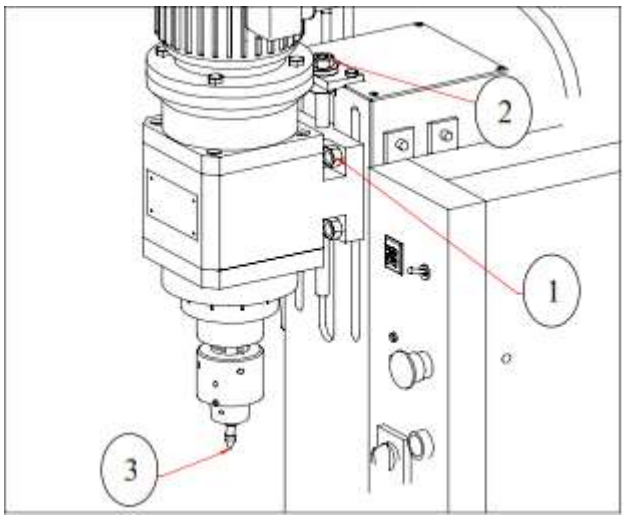
Task 1: Demonstrate how to adjust strap cutting machine.

Task 2: Operate the machine

Operation Sheet - 6	Operating Punching & Riveting Machine

Setting the Machine

The riveting power head can be lowered or raised by turning the nut of the jacking arrangement. Follow the following instructions during lowering or raising the head:-



At first keep the fixture (in components loaded condition) on base and see the gap between tool tip and rivet tip. Depending upon the gap, decide whether the power head is required to be raised or lowered from its existing level. If the power head has to be raised or lowered, follow the following steps:

Step1: loosen the nuts and raise the power head more than required and clamp there lightly.

Step2: rotate the dial anticlockwise as seen from top till it stops rotating. Now the machine will work with its full stroke available.

Step 3: rotate the dial clockwise as seen from top for three complete turns. Now the machine will work with a stroke = full stroke – 6mm

Step 4: put the machine in SET mode and take a stroke.

Step 5: now bring the power head downwards such that tool tip is about 0.5mm away from rivet tip. Clamp the power head at this level firmly.

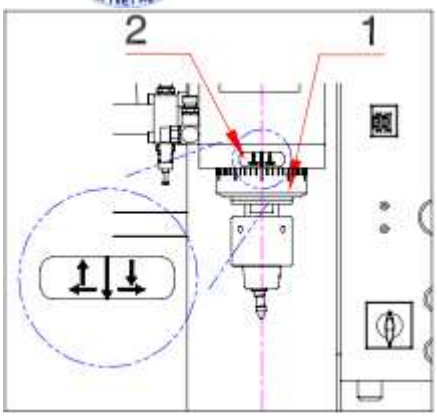
Step 6: put the machine into RUN mode and start the riveting.

Step 7: increase the stroke gradually and set the stroke as required.

Step 8: lock the dial to clamp this stroke permanently with the help of grub screw provided on the dial holder at the right side of operator.

Setting the stroke:

For the convenience of loading and unloading the job, the stroke should be kept as large as possible. To achieve this, follow the instructions given in above point in steps 1 to 8.



1 – Micromatic dial

2 – Direction indicating legend

The stroke of the spindle can be increased or decreased by rotating the micromatic dial. One graduation mark on the dial corresponds to 0.04mm. A legend plate on the head indicates the direction of rotation of the dial to increase or decrease the stroke.

As seen from top of the machine, clockwise rotation of miromatic dial reduces the stroke and anti clockwise rotation of micromatic dial increases the stroke. The stroke should be set such that the rivet head is formed to the required shape but the riveting tool does not touch the work piece.

Operating the Machine

- Insert the component (s) to be riveted as shown in the picture below.

- Press the foot pedal, the pneumatic system of the machine will automatically punches the rivets.

LAP Test – 6	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 3 hours.

Task 1: Demonstrate how to adjust punching and riveting machine.

Task 2: Operate the machine

Operation Sheet - 7	Operating Buttoning Machine

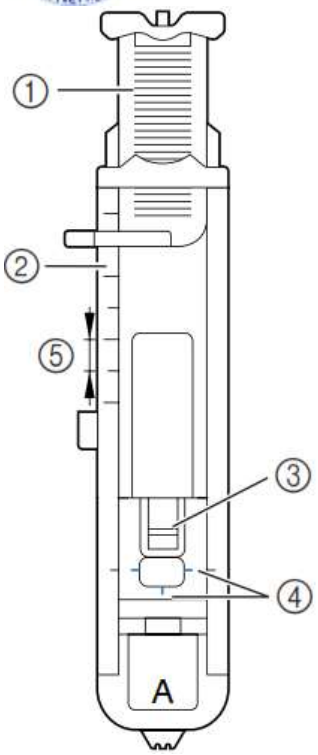
Adjustments

The basic adjustment and preparation operations of the buttoning machines are similar to that sewing machine and it can be referred in Operation Sheet1 of this learning guide.

Operating the Machine (sewing button hole and attaching button)

A) Sewing Button Hole

The names of parts of buttonhole foot “A”, which is used for sewing buttonholes, are indicated below.



1 – Button guide plate

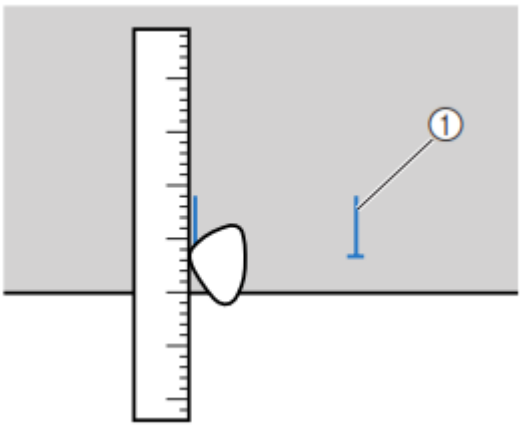
2 – presser foot scale

3 – pin

4 – Marks on button hole foot

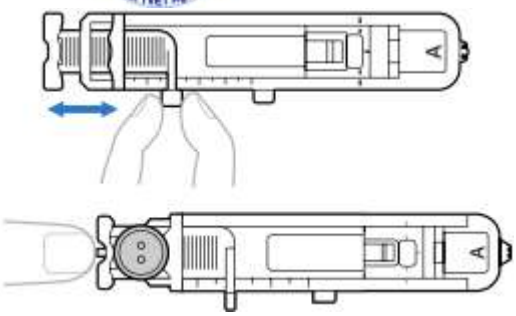
5 – 5mm (3/16 inch)

Step 1. Use chalk to mark the position and length of the button hole on the leather.

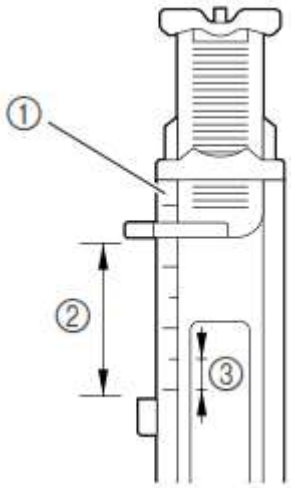


1 – Marks on leather

Step 2: Pull out the button guide plate of buttonhole foot “A”, and then insert the button that will be put through the buttonhole.



If the button does not fit in the button guide plate, add together the diameter and thickness of the button, and then set the button guide plate to the calculated length. (The distance between the markings on the presser foot scale is 5mm (3/16inc).)

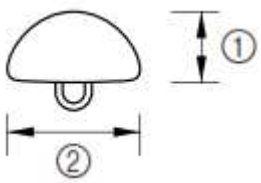


1- presser foot scale

2- Length of button hone (diameter + thickness of button)

3 – 5mm (3/16 inch)

Example: for a button with a diameter of 15mm (9/16 inch) and a thickness of 10mm (3/8 inch), the button guide plate should be set to 25mm (1inc) on the scale.



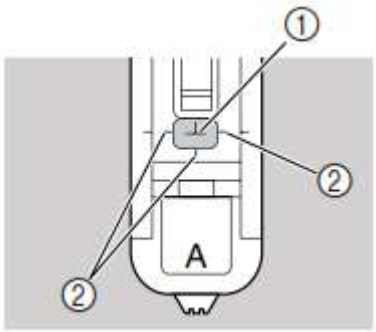
1 – 10mm (3/8 inch)

2 - 15mm (9/16 inch)

Step3: Attach buttonhole foot “A”

Step 4: Select a stitch.

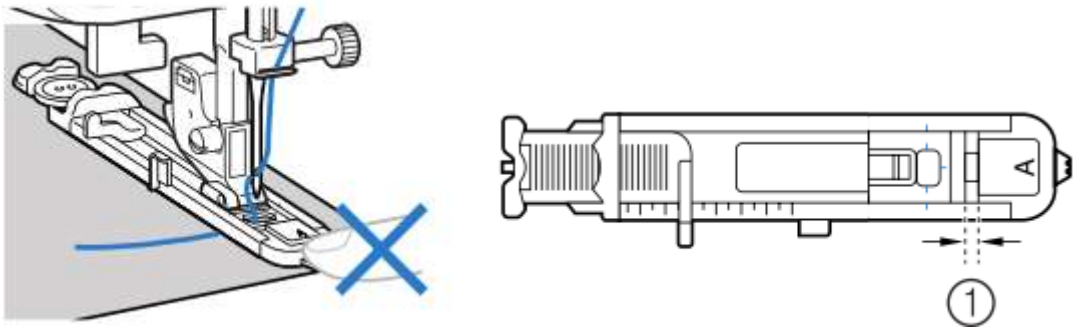
Step 5: Position the leather with the front end of the buttonhole mark aligned with the red marks on the sides of the buttonhole foot, and then lower the presser foot lever.



1 – mark on leather

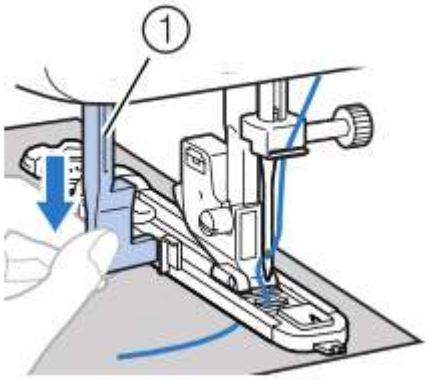
2 – red marks on buttonhole foot

When lowering the presser foot, do not push in the front of the presser foot, otherwise the button ole will not be sewn with the correct size.



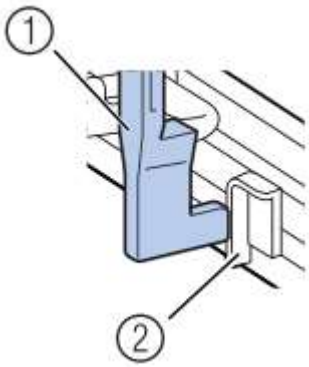
1- Do not reduce the gap.

Step 6: Pull down the buttonhole lever as far as possible.



1 – Buttonhole lever

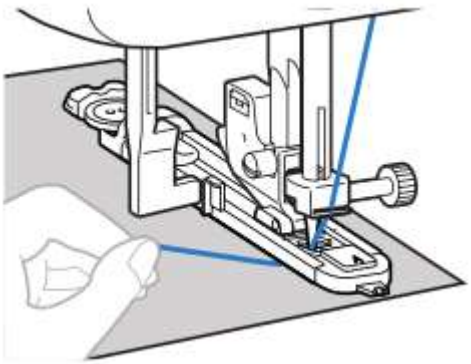
The buttonhole lever is positioned behind the bracket on the button hole foot.



1 – Buttonhole lever

2 - Bracket

Step 7: Gently hold the end of the upper thread, and then start sewing.

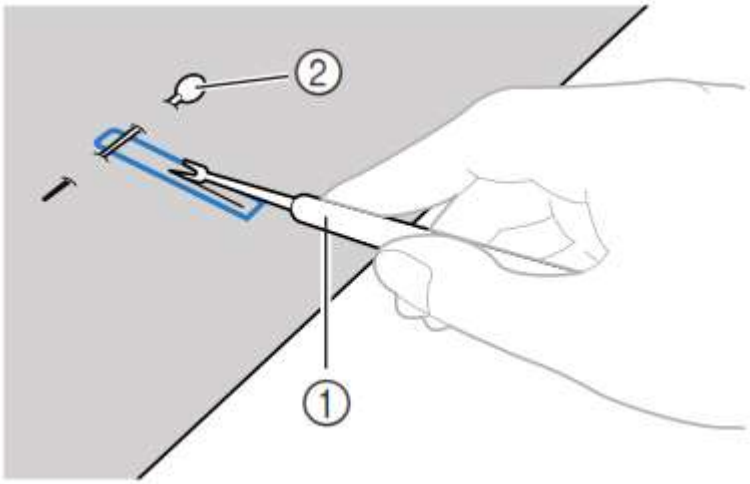


Once sewing is completed, the machine automatically sews reinforcement stitches, then stops.

Step 8: Raise the presser foot lever, remove the fabric, and cut the thread.

Step 9: Raise the buttonhole lever to its original position.

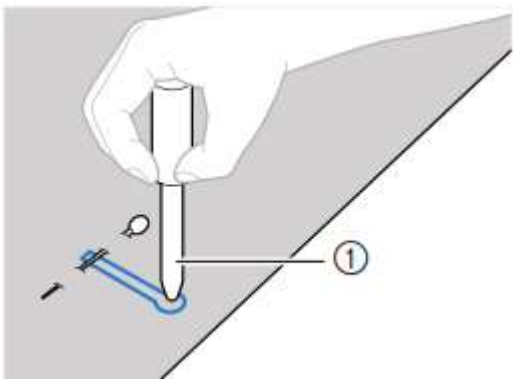
Step 10: Insert a pin at the end of the button hole stitching to prevent the stitching from being cut, and then use a seam ripper to cut towards the pin and open the buttonhole.



1- Seam ripper

2- Pin

For keyhole buttonholes, use a commercial eyelet punch to make a hole in the rounded end of the buttonhole, and then use seam ripper to cut open the button hole.



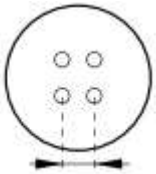
1 – Eyelet punch

When using the eyelet punch, place thick paper or some other protective sheet under fabric before punching the hole in the fabric.

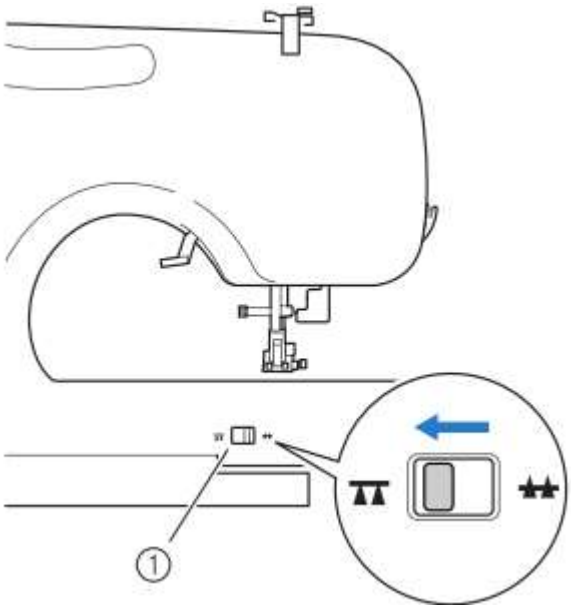
B) Button Sewing

Buttons with 2 or 4 holes can be attached

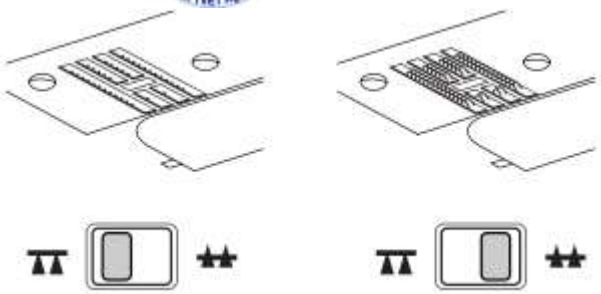
Step 1: measure the distance between the holes in the button to be attached.



Step 2: raise the presser foot lever, and then slide the feed dog position lever, located at the rear of the machine on the base, to (to the right as seen from the front of the machine).

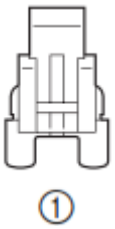


1 – Feed dog position lever (as seen from the rear of the machine)



The feed dogs are lowered

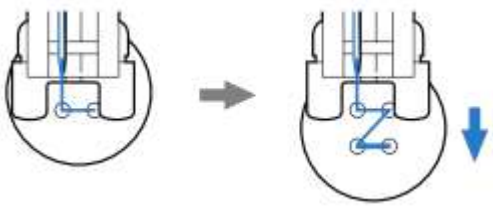
Step 3: Attach presser foot “M” (button fitting foot)



1 – Button fitting foot “M”

Step 4: place a button between the presser foot and the leather.

When attaching four-hole button, first sew the two holes closest to you. Then, slide the button so that the needle goes into the two holes toward the rear of the sewing machine, and then sew them in the same way.



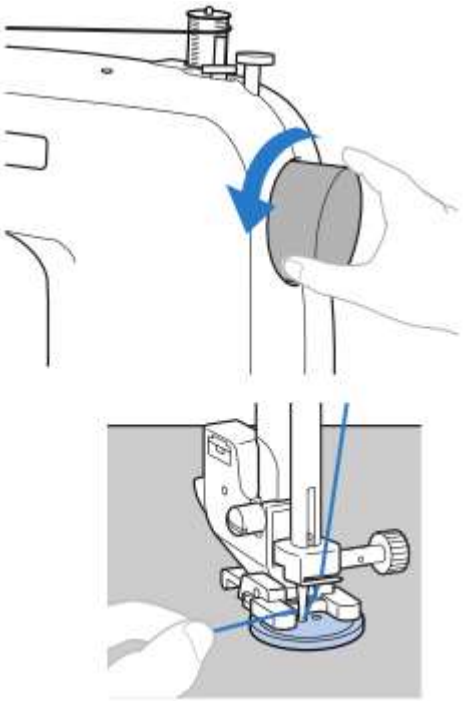
Step 5: select a stitch . (With models not provided with stitch , select stitch .)

Step 6: Adjust the stitch width so that it is the same as the distance between the holes in the button.

Step 7: set the stitch length to the shortest setting by pressing the stitch length adjustment key.

Step 8: turn the hand wheel counterclockwise to check that the needle correctly goes into the two holes of the button.

Adjust the stitch width to the distance between the button holes.



Step 9: start sewing.

After sewing for about 10 seconds at low speed, press (reverse/ reinforcement stitch button) to sew reinforcement stitches.

Step 10: pull the upper thread at the end of the stitching to the wrong side of the leather, and then tie it with the bobbin thread.

Use scissors (cutters or thread trimmers) to cut the upper thread and the bobbin thread at the beginning of the stitching.

Step 11: when finished attaching the button, slide the feed dog position lever to  (to the left as seen from the front of the machine) to raise the feed dogs)

LAP Test – 7	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 3 hours.

Task 1: Demonstrate how to adjust buttoning machine.

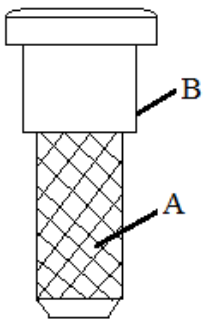
Task 2: Operate the machine

Operation Sheet - 8	Operating Edge Dyeing Machine

Adjustment Settings

Switch of the machine. Unscrew the knobs, slide out the container and pour the ink or dye into the container to about the half-way mark. Replace the container in position, placing it under the support screws and tighten the knobs. Use the regulating screws to set the guide passage at the ideal width for the size of the pieces to be inked or dyed. Switch on the machine: the ink jet will flow from the flow regulator. Set this component closer or further from the inking roller according to the amount of ink or dye for the best inking results. Lastly, set the brush against the inking roller at the correct pressure to remove the excess ink or dye.

If the material to be colored has an edge thickness up to 2mm, it is advisable to use the two guides (upper and lower support guides), to prevent the material from bending which will provoke incorrect coloring. Using material with a thickness over 2mm, it may be easier to use only the lower support guide, as shown in the drawing. Some models have a standard dyeing roller composed of two pieces, one example is the BIBO edge dyeing machine. One straight knurled part (A) for dyeing the perpendicular edge of the material, and an upper part (B) with a larger diameter for coloring a line along the upper surface edge of the material to provide 90^{o} angle coloring results.



To obtain this type of coloring, the material must be placed on the lower guide then, using the knob, the whole unit must be raised until the part B comes into contact with the material. The width of the line to be colored on the material surface is half the difference between the diameter of the upper roller B, and the diameter of the lower knurled roller A.

Example:

A: lower roller wit h16 mm diameter

B: upper roller wit h20 mm diameter

20 – 16 = 4 mm

4/2 = 2 mm (to obtain a line 2mm wide).

Operating the Machine

Make sure the machine is connected to the main line. The machine can be started up by pressing the black button [I] (ON) of the main switch.

Working on pieces of materials (components, assembled products) is shown by the below figures, which are self explanatory to show how the machine operates (works).

a) b)

Fig. (a)working phase on edges of a single piece (b) working phase on edges of assembled hand bags

LAP Test – 8	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 3 hours.

Task 1: Demonstrate how to adjust Edge Dyeing Machine.

Task 2: Operate the machine

Instruction Sheet	LG25: Check Works Received from a Machine

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

- Removal of work piece from a machine
- Checking completed work according to specification and workplace standard
- Labeling or tagging completed work
- Completion of necessary documentation in accordance with enterprise procedures

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:

- Check completed work according to specification and workplace standard
- Label or tag completed work
- Complete necessary documentation

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 11.
3. Read the information written in the "Information Sheets 1". Try to understand what are being discussed. Ask your teacher for assistance if you have hard time understanding them.
4. Accomplish the "Self-check 1" in page 12.
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).

6. 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 Instruction #3.
7. Submit your accomplished Self-check. This will form part of your training portfolio.
8. Read the information written in the “Information Sheet 2”. Try to understand what are being discussed. Ask your teacher for assistance if you have hard time understanding them.
9. Accomplish the “Self-check 2” in page 17.
10. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 2).
11. If you earned a satisfactory evaluation proceed to “Learning Guide #20”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Instruction #8.

Information Sheet-1	Checking completed work

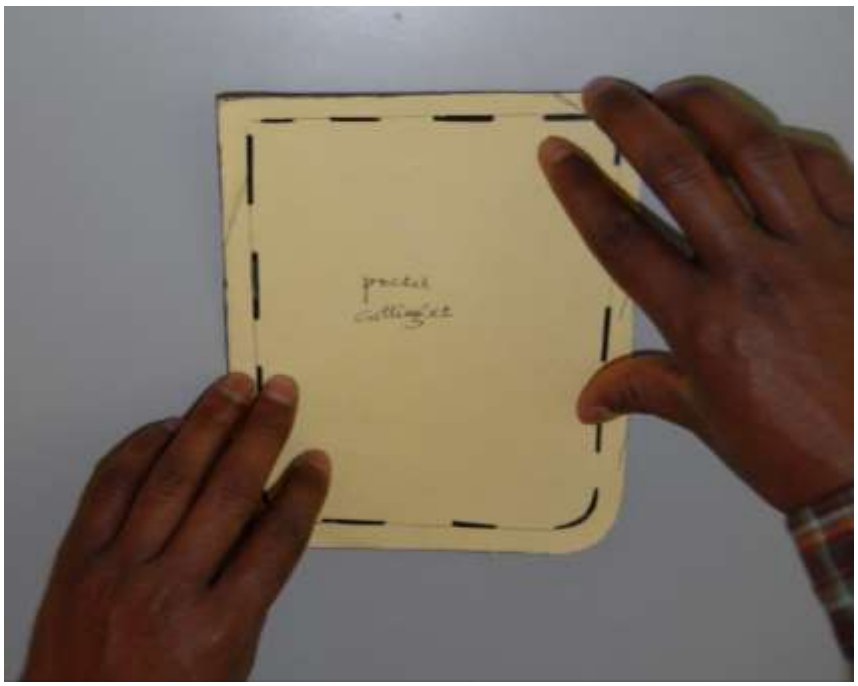
3.1 Removal of work piece from a machine

After we cut components remove the pieces from the machines safely and put the pieces in appropriate space to used goes to the next step.

3.2 Checking completed work

Checking Cut Components with Cutting and Making Patterns (taking the case of pocket component)

After cutting, component should be checked with the cutting pattern for exact size fitting including allowances.

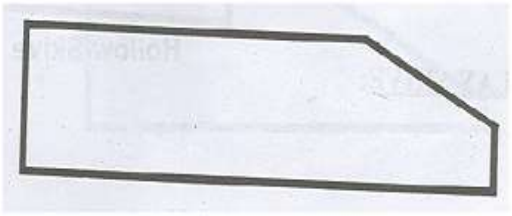


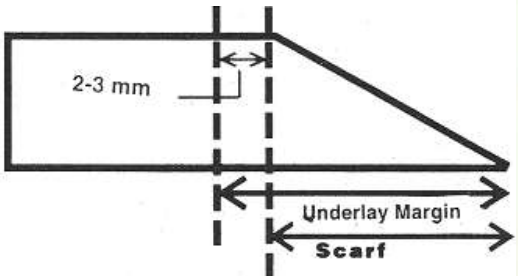
Then the cut component should be checked with the making pattern to get the exact pocket size via the following steps:

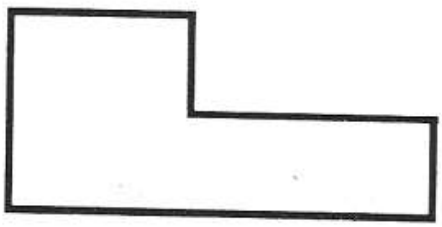
Step 1: mark on cut leather component using the perforations on the cutting pattern

Step 2: lay the making pattern on the marked leather component to check for exact pocket size as follows

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







The following are the quality requirements (standard) for various types of skiving:

- 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.

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.

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.

Check Split Components

The components before and after splitting should be checked against the work ticket specification before and after splitting of the components. The work tickets can vary from company to company. Information 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 checking of various types of components is very easy.

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:-

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.

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.

Inspection Method for Cut Components

1. Check the visual defects on the cut components.

The cut components should be inspected for the following defects.

- Loose or fibrous material
- Brand marks operation scars and open flaws.
- Closed flaws wire marks and scratches
- Growth marks or fat wrinkles
- Veins
- Fly cuts
- Discolored areas
- Insect or parasitic damage.
- Any other defect that may render an area of leather unusable.

2. Check the edge of the cut components.

   Components should be check if any fault on the edges of the components.

3. Check the line of tightness and stretch direction

   For example in the case of bags upper components, the line of tightness runs from base (bottom) to mouse (top).

   After cutting the clicker must check the component for quality & stretch1.

4. Check the thickness of the leather

   Suede split – Some skins are usually too thick & heavy for goods upper.

5. All components should be collected for the grain matching.

The decoration on individual components of one product must also match just like grain matching.

6. Nap of suede and Nubuck leather components should be matched.
7. Color of suede and Nubuck leather components should be matched.

3.3 Labeling or tagging completed work

When we finish cutting and checking the quality parameter of the specification labeling or tagging is doing this is used to confirm the quality and quantity of work piece.

Self-Check 1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Describe the defects for which the cut components are to be inspected (5pts)
2. Discuss how the components are to be inspected for the defects described in question#1 (5pts)

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. _____
   _____
   _____
   _____
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   _____
   _____
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2. _____
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   _____

Information Sheet 2	3.4 Completion of necessary documentation

Cut Component Inspection Report

Final inspection is very important in catching quality problems. This is the last check before the cut components are sent to the next operation. Skilled auditors are required to perform this job because many of the defects at this point require the attention of a skillful eye.

Cut components final inspection report in the case of leather goods:

CUTTING FINAL INSPECTION

DATE:_____ **ART/COLOR:**_____ **PASSED QTY:** _____

PLAN No:_____ **DESCRIPTION:**_____ **REJECTED QTY:**_____

PLAN Qty:_____ **No of pairs seen:**_____ **PERCENTAGE :**_____

S/N	DEFECT	Front	Back	Base	Gusset	Flap	Handle	TOTAL	% age
		upper	Upper	upper	upper	upper	upper	upper	
1	Loose Leather								
2	Uneven Skiving								
3	Under Thickness								
4	Improper Skiving Allowance								
5	Edge Cut in Cutting								
6	Improper Splitting								
7	Under Substance								
8	Skiving Damage								
9	Wrong Size								
10	Color Vibration								
11	Different Type Of Leather								
12	Stamping								
13	Plan No. Mixed								
14	Pair No.Size Not Stamped								
15	Embossing Not Clear								

Daily Quality Report

With the help of this report we can know the how much components are rejected in a particular plan. With this report we can know the name of the components and the percentage of the rejection can be known easily.

UPPER/LINING CUT COMPONENT INSPECTION

DATE:_____ **ART/COLOR:**_____ **PASSED QTY:** _____

PLAN No:_____ **DESCRIPTION:**_____ **REJECTED QTY:**_____

Plan Qty:_____ **No of pairs seen:**_____ **PERCENTAGE :**_____

S/N	DEFECT	Front		Back		Base	Gusset	Flap	Handle	TOTAL		%age	
		U	L	U	L	U	L	L	U	U	L	U	L
1	Loose Leather												
2	Open Defect												
3	Cut/flaw												
4	Vein Marks												
5	Scratches												
6	Growth Marks												
7	Under thickness												
8	Bossy nap												

Key:

U = upper

L = lining

Daily Production Report

A daily production report (**DPR**) is a term for the form filled out each day of production for a bag to summarize what occurred that day. There is standard template for a production report and the purpose of this form is to keep track of a production's progress.

XXX COMPANY			
DAILY CUTTING PRODUCTION REPORT			
DATE			
MODEL NO			
PLAN NO			
COLOUR			
	TYPE	SIZES	

	M	38	39	40	41	42	43	44	
	W	34	35	36	37	38	39	40	
	C	33	34	35	36	37	38		
MATERIAL	SIZES								TOTAL
Leather									
Lining									
Texon board									
Fusing									
Stiffener									

Self-Check 2	Written Test

Instructions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page.

1. Discuss cut components final inspection report (5pts).
2. Describe the daily quality report (5 pts).
3. Describe daily production report (5pts)

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Short Answer Questions

Instruction Sheet	LG26: Finish Work and Clean Up

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

- Switching off machine according to the procedure
- Cleaning and performing minor maintenance in accordance with enterprise requirements
- Disposals of worn or damaged parts in accordance with safe working practice
- Report any problems, damages and abnormal conditions requiring maintenance or repair to concerned authority

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:

- Switch off machine using correct 'power off' procedures
- Clean machine and perform minor maintenance in accordance with enterprise requirements
- Dispose worn or damaged parts in accordance with safe working practice.
- Report any problems, damages and abnormal conditions requiring maintenance or repair to concerned authority

Learning Instructions:

12. Read the specific objectives of this Learning Guide.
13. Follow the instructions described in number 3 to 11.
14. Read the information written in the "Information Sheets 1". Try to understand what are being discussed. Ask your teacher for assistance if you have hard time understanding them.
15. Accomplish the "Self-check 1" in page 5.

16. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
17. 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 Instruction #3.
18. Submit your accomplished Self-check. This will form part of your training portfolio.
19. Read the information written in the “Information Sheet 2”. Try to understand what are being discussed. Ask your teacher for assistance if you have hard time understanding them.
20. Accomplish the “Self-check 2” in page 9.
21. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 2).
22. 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 Instruction #8.
23. Accomplish the “Self-check 3” in page 12.
24. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 3).
25. If you earned a satisfactory that will be the end of this competency. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Instruction #11.

nformation Sheet-1	**Cleaning and performing minor maintenance in accordance with enterprise requirements**

4.1 Switching off machine

After completing work, prior to cleaning and lubricating, the machines should be stopped and the power from the main line should be switched off.

4.2 Cleaning and performing minor maintenance

Careful cleaning and regular oiling after each operation will increase the service life of the machine. Remove the dust which has accumulated on the machine, take a clean rag and remove the grease from all nickel-plated and polished parts. Apply a few drops of kerosene to all oiling pints, raise the presser foot, unthread the needle, remove the bobbin case and let the machine run. Apply a few drops of oil to all points of friction. In actual cases these points of friction should be oiled twice a week, and the sewing hook must be oiled each day the machine is in operation. Make particularly sure that oil is applied to oil-hole part of the machine. *(Refer to learning guide#1for the detail cleaning activity of sewing machine)*

Cleaning and Oiling Splitting Machine

Exhaust unit which is used to collect scraps and dust during splitting should be cleaned daily in such a way that:

- Empty the scrap container each time that it is requested on the control panel video message.
- Clean the entire machine of processing scrap.
- Clean the scrap filter removing the knobs that secure it.
- Clean the dust collection bag kept in position by means of elastic edging.

Cleaning and Oiling Skiving Machine

The machine must be daily cleaned from the normal working scraps using compressed air and cleaning the working area (guide, knife feed roller and its hoider-set). Pour in lubricating oil for the blade into the special container. The scrap box (waste basket of the machine) can be cleaned as follows:

- Switch off the machine and open the door of the scrap box
- Take out and empty the waste basket
- Remove the material which has accidentally come out of the basket before removing the filter.
- Once the internal case is thoroughly clean, take out the filter.
- Clean the filter by carefully following the instructions printed on its side
- Clean that no machining waste material has accidentally fallen into the underlying fan. If it has, clean it carefully.

- Correctly install the filter again (see assembly drawing) as well as the basket and properly close the door.

N.B: the filter should be changed every TWO MONTHS.

Cleaning and Oiling Strap Cutting Machine

The scrap box should be cleaned every time after work. The front screen of the machine (see fig.) should be cleaned whenever disassembled. But never use solvents to clean the front screen.

Self-Check 1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

3. Describe how to clean and oil sewing machine after work? (5pts)
4. What are the procedures to clean skiving machine (5pts)
5. Discuss how to clean splitting and strap cutting machines (5pts)

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. _____

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2. _____

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3. _____

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Information Sheet 2	Disposals of worn or damaged parts

4.3 DISPOSALS OF WORN OR DAMAGED PARTS

Decommissioning, dismantling and disposing of plant

Various nations have devised their own OHS regulations and code of practices for creating the safest work area. The following regulation is the Australia's OHS regulation on decommissioning, dismantling and disposing of plant.

Regulation 204: A person with management or control of plant at a workplace must ensure that:

- Plant is not decommissioned or dismantled unless it can be carried out without risks to health and safety so far as is reasonably practicable
- The person who decommissions or dismantles the plant is a competent person and is provided with all available information necessary to eliminate, or where this is not reasonably practicable, minimize risks to

Any hazards inherent in the process of decommissioning and dismantling the plant (for example, exposure to hazardous substances) should be identified. The plant should be dismantled in accordance with the designer's and manufacturer's instructions.

Disposing of plant may include reselling (in full or part) or scrapping (waste disposal and/or recycling). If the plant is to be resold, the seller will take on the duties of a person that supplies plant. The seller should ensure that the plant is safe to load, transport, unload and store. Any information relating to the plant design, registration, installation, operation and/or maintenance must be provided with the plant to the reseller or buyer.

If the plant is to be scrapped, local waste disposal authorities or organizations should be consulted so that the plant is safe to load, transport, unload and dispose of.

If the plant is to be used for scrap or spare parts, you must inform the person you are supplying the plant to that the plant is being supplied as scrap or spare parts and that the plant in its current form is not to be used as plant. This must be done in writing or by marking the item of plant.

Self-Check 2	Written Test

Instructions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page.

4. What is the purpose of disposals of worn or damaged parts (5pts).

.

Satisfactory rating - 5 points **Unsatisfactory - below 5 points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. _____

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_____

_____

_____

Information Sheet 3	Reporting and recording problems on maintenance

1.4 Reporting and Recording problem

Reporting problems, damages and abnormal conditions requiring maintenance or repair is different for different companies. In most of the cases operators who are working on the machines identify problems and report to the supervisors (in some cases production managers). Then, the supervisor (production manager), recognizing the problems, will report to the maintenance department for immediate action (maintenance operation). The following checklist is a sample maintenance checklist.

Maintenance Checklist

Department/Location: Date:

Tool or Equipment Description	Serial Number	Recommended maintenance period	Previous date serviced	Scheduled service date	Date serviced	Previous date inspected	Scheduled inspection date	Date inspected

Self-Check 3	Written Test

Instructions: Perform the following tasks. Write your answers in the answer sheet provided:

1. How do you report maintenance request? (5pts)

2. Who are identifying problems of machine? (5 pts)

Satisfactory rating - 10 points **Unsatisfactory - below 10 points**

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

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Short Answer Questions

Reference

- ATOM Splitting Machine instruction manual
- Basic Footwear Cutting Operation TTLM, LIDI, 2012
- BIBBO Edge Dyeing Machine instruction manual
- BROTHERS Buttoning Machine instruction manual
- L900 Strip Cutting Machine instruction manual
- PFAFF 294, 1293, 1294 Model Sewing machines instruction manual, G.M. PFAFF KAISERSLAUTERN INDUSTRIEMASCHEIN AG.