Basic footwear production level I

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

Module Title: Perform Basic stitching

LG Code: IND BFP1 M10 LO(1-4) LG(52-55)

TTLM Code: IND BFP1 TTLM 1220V1

December 1220

Table content

LG #52	LO #1- Identify and use materials, tools, equipment and machines
Instruction sheet	

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

- ✓ Obtaining work instructions, specifications, and operational
- ✓ Identifying Materials, tools, equipment and machines
- ✓ Checking tools, equipment and machines for proper functionality
- ✓ Cleaning, checking, maintaining and storing tools and equipment
- ✓ Identifying safety of operator and work place
- ✓ 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

  - Work instructions, specifications, and operational details relevant to the tasks are obtained.
  - Materials, *tools*, equipment and machines are identified and prepared consistent with the needs of the job.
  - Tools, equipment and machines are checked for proper functionality according to work standard practices
  - Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer specifications and work standard practices.
  - Safety of operator and work place in closing section is identified according to operational procedure

Learning Activities:-

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the “Information Sheet 1”.
3. Accomplish the “Self-check 1

4. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet 1.
5. Submit your accomplished Self-check. This will form part of your training portfolio.
6. Read the information written in the “Information Sheet 2”.
7. Accomplish the “Self-check 2”
8. If you earned a satisfactory evaluation proceed to “Information Sheet 3”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet 2.
9. Submit your accomplished Self-check. This will form part of your training portfolio.
10. Read the information written in the “Information Sheet 3”.
11. Accomplish the “Self-check 3”
12. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet 3.
13. Submit your accomplished Self-check. This will form part of your training portfolio.
14. Read the information written in the “Information Sheet 4”.
15. If you earned a satisfactory evaluation proceed to “Information Sheet 5 However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet
16. Accomplish the “Self-check 5”
17. (if you are ready) and show your output/performance to your teacher. Your teacher will evaluate your output/performance either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advice you on additional work.

Information Sheet-1 Obtaining work instructions, specifications, and operational

1.1.The Tasks Of The Sewing Machine Operator Are:

Activates and adjusts machine controls to regulate stitching speed and length

Adjust the thread tension.

Activates sewing machine to join, reinforce, or decorate materials.

Positions materials through feed rollers and guides, or positions and maneuvers under sewing machine presser foot and needle during operation

Examines the finished articles to verify conformance to standards.

Places spools of thread, cord, or other materials on spindles, inserts bobbin, and threads ends through machine guides and components.

Records amount of materials processed in production batch.

Removes finished materials from sewing machine.

Positions and marks patterns on materials to prepare for sewing.

Replaces needles, sands rough areas of needles with sandpaper, and cleans and oils sewing machines to maintain equipment.

Selects supplies, such as binding, cord, or thread, according to specifications or color of material.

Mounts attachments, such as lining trimmer, thread trimmer, and adjusts machine guides according to specifications.

Monitors machine operation to detect problems, such as defective stitching, breaks in thread, or machine malfunction.

Folds or fits together materials to prepare for machine sewing

1.2. Required Knowledge For Sewing Machine Operators

A. Mechanical;Knowledge of machines and tools, including their designs, uses, repair, and maintenance.

B. **Production and Processing;**Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of leather

1.3. Abilities Required For Sewing Machine Operators

1. Manual Dexterity: The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble components.

2. **Arm-Hand Steadiness:**The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

3.**Visualization;**The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged

4.**Finger Dexterity:**The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

5.**Near Vision:**The ability to see details at close range (within a few feet of the observer).

6.**Control Precision:**The ability to quickly and repeatedly adjust the controls of a machine to exact positions.

7.**Visual Color Discrimination:**The ability to match or detect differences between colors, including shades of color and brightness.

8.**Wrist-Finger Speed:**The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

9. **Problem Sensitivity:**The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Self-Check 1 Written Test

Name: _____ **Date:** _____

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

I. Short answer questions:-(5point)

1 list five abilities Required For Sewing Machine Operators

A. ----

B. ------

C. ------

D. -----

E. -------

II. Choose best answer questions:-(3point)

1. The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, or assemble components is ---------

A. Manual Dexterity b. Arm-Hand Steadiness c. Visualization;Near d. Vision:

2. -------is the ability to see details at close range (within a few feet of the observer).

A. Manual Dexterity b. Arm-Hand Steadiness c. Visualization;Near d. Vision:

3. Knowledge of machines and tools, including their designs, uses, repair, and maintenance.

A. Mechanical. B. Production and Processing. C. Visualization;Near d. Vision:

Note: **Satisfactory rating - 8points Unsatisfactory - 8below**

Information Sheet-2 Identifying Materials, tools, equipment and machines

2.1. Identification of machine parts

A. Parts under the table:

1. M/c on/ off switch:

It helps to connect and disconnect the power from main channel to motor.

2. Treadle/ Paddle:

It works, as an accelerator, like depressing front part of the treadle will start and depressing back part will stop the m/c.

3. Leg/ Stand: Holds the m/c in vertical position & allows height adjustment accordingly.

4. Motor: It generates the required power according to the m/c speed (stitching speed).

5. Pulley/ Transmission belt: Transfers the power to balance wheel via V- belt.

6. Pitman rod:Connects the treadle with the clutch.

7. Knee press: It releases tension disc and raises pressure roller.

8. Drip tray: It collects excess oil and dust of materials (leather, thread, etc.).

B. Part above the table:

1. Balance wheel/ Hand wheel

It transmits power through V- belt to the mechanism. It

2. **controls take-up lever**

. Always turn it towards you.

3. Bobbin Winder:

For winding the bobbin.

4. Bobbin winding assembly:

Helps in re- winding the bobbin.

5. Check spring:

Tightens the lock during stitch formation.

6. Faceplate: Covers all side shafts like needle bar, pressure roller bar for safety & maintenance purpose.

7. Feed Dog Feed dogs feed the material while the machine sews. Never push or pull **your material.** The material will be fed through for you. All you have to do is gently guide your fabric.

8. Light: Pours light on sewing area.

9. M/c arm: Provides space for the material during stitching.

10. M/c head: It consists/bear entire top mechanism.

11. Motor Belt: It activates machine.

12. Needle bar: It gives space to insert the needle and has space for fixing the needle **screw.** Sometimes it also accommodates a needle thread guide near its tip. It holds the needle and drives needle into the material for stitch formation.

13. Needle/ Throat plate: It provides space for bottom feed, provides base to the material being stitched and gives passage to the needle for it's up and down movement.

14. Needle hole: It allows needle to go inside to make stitch.

15. Needle plate screws: To hold the needle plate in its required position.

16. Needle thread guide: It is a guide at the tip of the needle bar.

17. Pressure roller: It helps to hold & feed the material.

18. Pressure roller lifter: It is used to lift the pressure roller.

19. Pressure Regulator: It controls pressure of presser foot on material

20. Shuttle/ Hook: It picks up the top thread from the needle with the help of the hook point and enlarges it.

21. Stitch Length regulator: It helps to adjust stitch length accordingly.

22. Table Top: It provides place for the m/c head, bobbin winder, thread stand, inching scale, rubber pads and m/c rest. It provides space for the material.

23. Take Up lever: It controls the thread for stitch formation, i.e., the enlarged slack of thread by the hook point is taken back by the take up lever.

24. Tension Disc: It is used to adjust the top tension for a good stitch formation according to the material.

25. Thread Cutter: Slot on back of bar cuts thread easily and safely.

26. Thread guide: It gives direction to the thread.

27. Thread stand: It keeps thread cones for top threading and bobbin winding.

28. Throat Plate: also called needle plate, covers the area that holds the bobbin.

It has an opening for the needle to pass through, as well as lines that serve as sewing guides.

The needle may be a single hole, used for straight stitching, or an oblong hole, which allows the needle to make stitches that have width (such as zig-zag stitches).

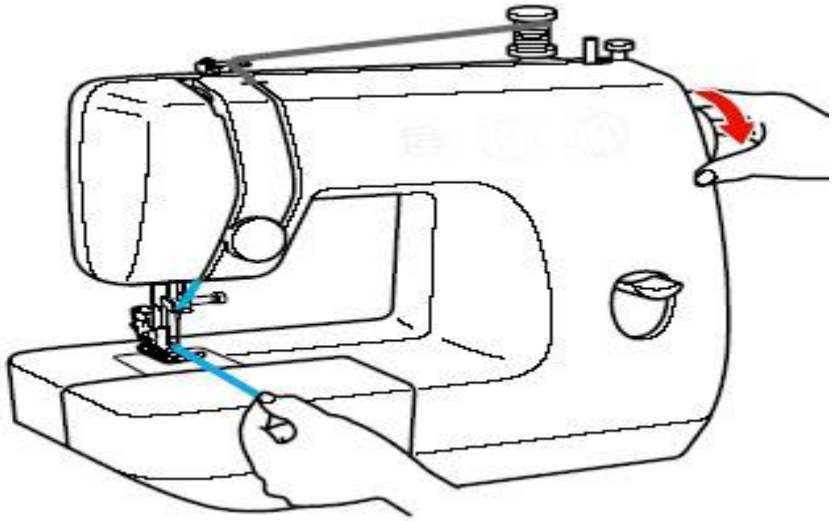


Fig 1, machine Part above the table and equipment

2.2. Threading: Machines

Top threading: Machines vary as to how exactly they are threaded, but all have certain common features. The thread runs from the spool holder, through a tension device and down through the needle. The tension device controls the tension on the thread. It consists of a groove that the thread slides through. The mechanism for setting the tension may be a dial or buttons (computerized machines).

The thread runs from the tension device, down to the needle area. There are usually small grooves in the arm that holds the needle, for the thread to pass through. This holds the thread close to the needle arm. The thread then runs down to and through the eye of the needle.

When threading, make sure that the presser foot is raised and the needle is in the highest position. If the presser foot is lowered the tension discs will be closed. Make sure the thread is placed between the tension discs. Occasionally when we are in a hurry or not really paying attention we inadvertently place the thread next to the tension discs instead of making sure it is firmly seating between them.

Top Thread the Machine

urn hand wheel toward you to raise take-up lever to its highest position.

Place spool of thread on spool pin.

Lead thread through the top-threading guide just above the thread spool on the thread stand. The distance between the thread guide and thread spool must be at least twice the length of the spool, from the top of the spool being used.

Now lead the thread through the threads guides from top to bottom on the machine head.

The Tools Required For Stitching Shoe Upper In Closing Section Are:

A. Small screwdriver (small and narrow tip) : For removing & replacing needles in the m/c and for small screws, e.g. Gibb screws.

B. Large screwdriver (wide tip) : Unscrew & tightening the large screws in m/c.

C. Long screwdriver: For unscrew & tightening screws in hard to get position on various parts of m/cs.

D. Scissors: for cutting thread of work when finished and for trimming all loose threads away from work.

E. Knee press Tool

For loosening & thi9gtening knee press nut on the m/c so as to adjust the knee press to suit any individual.

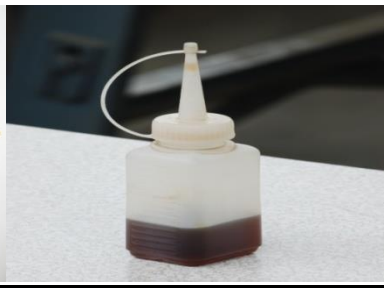
- **L/ hexagonal Keys:** Unscrew & tightening screw (angle corners
- **Silver Marketing pen:** Marking the work before required operation.

F. Maintenance Kit:

✓ Brush: for cleaning fluff & material build-up.

✓ Oil Container: Oiling the movable parts of m/c.

✓ Kerosene container: Cleaning the material build-up using the brush.

G. Dressing tool: Cleaning the sharpening stone in the skiving m/c.

H. Folding hammer: Helps in folding edges.

I. Punches: Making perforation in the components in order to fix eyeleting.

J. Spreaders: For spreading out the edge of the eyelets, fixing them properly on the material.

K. Poly Propylene board: For punching work.

L. Work Stone: For hammering, folding & fitting work.

N. Adhesive application brushes: For applying brushes

Self-Check 2 Written Test

Name: _____ **Date:** _____

I. Short answer questions:-(3point)

1. What is the use of spreader?
2. What is the use of punch set?
3. What is the use of picker?

II. Choose best answer questions (3point)

1--It is a guide at the tip of the needle bar.

a, Needle thread guide b. Pressure roller: c. Pressure roller lifter .d all

2. **---**It helps to hold & feed the material.

A, Pressure roller: c. Pressure roller lifter c, Needle thread guide d, none

3.--It is used to lift the pressure roller.

A. Pressure roller lifter B ,L/ hexagonal Keys C, Silver Marketing pen

Note: **Satisfactory rating - 6points Unsatisfactory - 6 below**

Information Sheet-3 Checking tools, equipment and machines for proper functionality

3.1 NECESSARY SETTINGS IN SEWING M/C:

Sewing machine is the basic necessity for a production of shoes in general and closing room in particular. Taking good care of these machines is a critical need for production.

To take good cares we have to check the machines performance. And to do that we must know different parts and operations of sewing machines. Especially miner problems and machine lubrication must be done by the steps

- ✓ With the operator seated at the machine comfortably, thighs parallel to the floor with feet resting on the treadle, adjust the seat or machine height.
- ✓ Must sit in front of the needle bar.
- ✓ Local light (32 watts) is a must on each m/c.
- ✓ Tension release must be operational, either by knee- press or pedal.
- ✓ A knee press is preferred to a foot lifter; it should not touch the thigh and should be 3cm away so as not to touch the thigh.
- ✓ Motor clutch to be adjusted for close contact.
- ✓ Treadle to be positioned just above parallel so that when it is pressed, it is activated, ensuring less fatigue for the operator..
- ✓ Pitman's rod and not chain to be attached from clutch to treadle with no extra movement.
- ✓ Single board treadle 1' X 1' is better for control.
- ✓ Thread guides to be on the machine head. All thread guides to be intact.
- ✓ Thread guide must be directly above the spool (twice the height of the spool from the top of the spool) to prevent the thread from snagging.

- ✓ Thread guide on top of arm (head) is vertical. Next one must be parallel to the head.
- ✓ Thread guide just before threading the needle is important for thread control.
- ✓ Threads stand to be in good condition and adjusted to suit spool height.
- ✓ Bobbin winder to be operational.
- ✓ Check spring to be operational.
- ✓ Needle holder must not fall off.
- ✓ Tension discs must be of hard metal and smooth and the tension spring must be firm so that one twist of the thumbnut makes a difference.
- ✓ Drip tray to be installed.
- ✓ Transmission belts to be continuous or in case leather belt has to be used, it should be 3/ 8'' (round) leather belt so as to fill the pulley cavity (for the drive which comes from the sides of the pulley).
- ✓ Belt should have 13- 16mm flexibility.
- ✓ Motor pulley must be in the center of the cut out to avoid belt erosion.
- ✓ The on- off switch must be 2'' inside the tabletop.
- ✓ Pressure roller to be as closes to the needle as possible and should be central to the needle.
- ✓ Pressure roller lift height to be 10mm.
- ✓ Pressure roller spring tension to be adjusted so as not to mark the leather.
- ✓ Feed roller or dog to have the tooth height only above the needle plate.
- ✓ Tension of the clutch to be adjusted to stop the machine when the treadle is released but still light to depress for power.
- ✓ Stitch length regulator must be non- slip (with washer and spring attachment

Stitch Length

Stitch length is a length of single stitch. It is adjusted by a stitch length regulator and

the stitch length should be maximum 5 stitches per centimeter and minimum 3 stitches per centimeter and mostly 4 stitches per centimeter in normal condition. Stitch length plays a vital role on the esthetic effect of any shoe.

Stitch Hole

Stitch hole is an impression which is made by needle. These holes are the main passing way for any stitch and it must always fit the thread. If any operator is using a wrong combination of holes and threads then duration of the stitch might be affected. When we are saying holes in other words we are referring needles so thread needle combination must be in mind of any stitching operator. If the holes are wider and thread thinner then water and dust could have got in to the shoe. If thread holes are narrower and thread is thicker then thread breakage might occur so the operator should know the combination of thread and needle for proper use of stitch hole

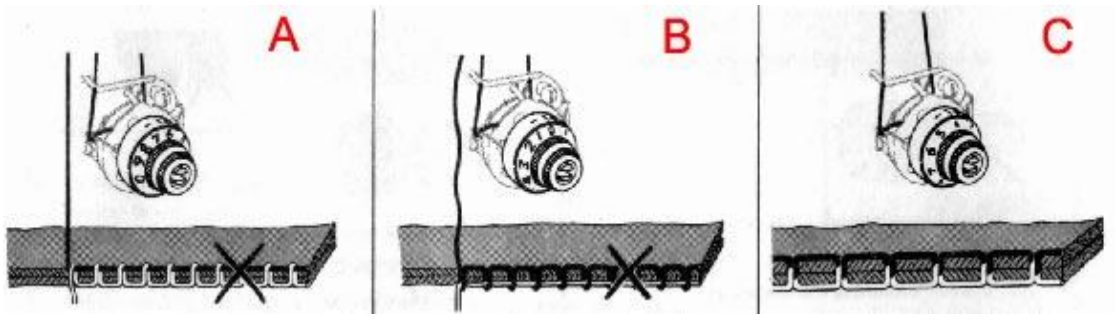
Tension:

This is the most likely place to find a problem. Generally the tension ranges from low to high in number, with high being the tightest.

The numbers on the dial represent the degree of tension on the needle thread. The higher the number, the tighter the thread.

Correct needle-thread tension is important because too tight a thread will cause material

to pucker. Too loose a thread, on the other hand, will produce slack stitches and weak seams.



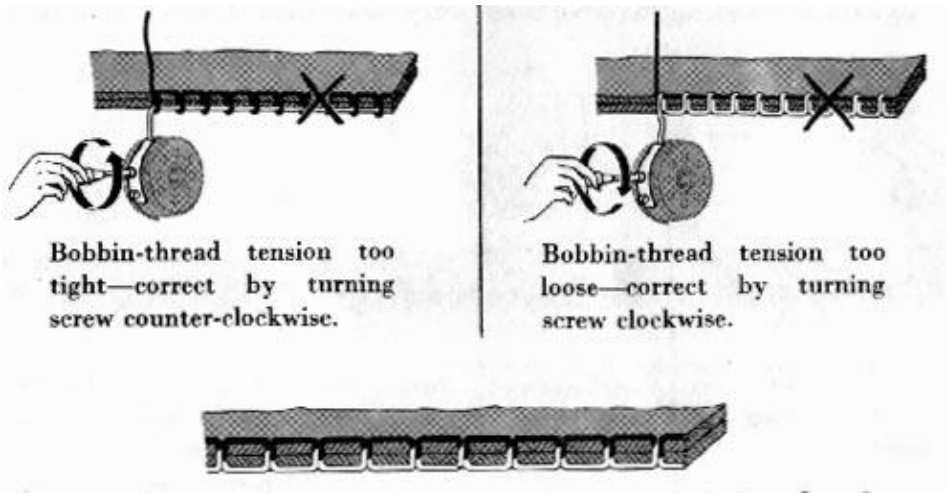
A = Needle-thread tension too tight -- correct by setting dial to lower number

B = Needle-thread tension too loose -- correct by setting dial to higher number.

C = A perfectly locked stitch results with upper and lower tensions balanced so that needle and bobbin threads are drawn equally into fabric.

Bobbin Tension:

With some machines, a screw is present which controls the bobbin tension.



Making adjustments:

before you start adjusting your tension, make these three checks. This is very important.

1. Be certain your machine is threaded properly. Even long time sewers can miss a thread guide.
2. Be sure your bobbin is properly installed.
3. Make sure your needle is inserted properly.

After going through the three checks, you may have to adjust the tension in order to sew a good stitch. Each time you have adjusted, sew a line of stitching. You should only have to make small, slight adjustments to correct your stitch.

Self-Check 3 Written Test

Define by short answer

1. Stitch Length (2points)
2. Stitch Hole (2points)
3. Bobbin Tension:(2points)

Note: **Satisfactory rating - 6points Unsatisfactory - 6 below**

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

3.1 Cleaning and maintenance for sewing machine

A well-made sewing machine traditional ,new or old, used often or only occasionally will sew perfectly for many years if it is given proper care. It may need to be adjusted or a part may need tube replaced, but a sewing machine that is given proper maintenance and cleaned regularly seldom actually “wears out.”

Sewing machines generally require the basic maintenance of cleaning, oiling, and lubricating.

A sewing machine is like any other piece of machinery. It will work better if you have a regular schedule of cleaning and maintenance. Here are some tips to help you get into the habit of taking care of your sewing machine.

When you are sewing, the fabric will give off lint. But, the biggest source of lint is your thread. If you use a higher quality thread, there will be less lint in your machine. But, you will still need to keep an eye on the lint in your machine. This builds up in the moving parts of your machine. It can clog the needle entry area in the bobbin case or clog up the tension discs. If you let this build up, your machine is sure to break down, eventually

1. Flatbed sewing machine

Figs1 Flatbed sewing machine

2. Flatbed sewing machine

Before you do any cleaning or maintenance, be sure to unplug your machine. Some machines will come with a nylon brush included with the other accessories. This will

do very well cleaning out the lint in all the tight areas inside your sewing machine. Once you open your machine, clean out any visible lint you can find. While you are using your machine, if you see any lint in the thread guides, this should be cleaned out immediately.

3. Cylinder bed sewing machine

Cylinder bed sewing machine

And, if you keep your machine dust and lint free, that will go a long way towards keeping your machine functional.

To clean between the tensions discs, you may need to raise the presser foot. Use a nylon brush with long bristles. Or you might also use a very narrow pick. If lint is left

here, it will affect the tension. So, if you have trouble with the tension not working correctly, try cleaning here first.

4. Post bed sewing machine

The needle feeds also need to be kept free from lint. You will probably need to remove the needle plate to get them thoroughly clean. It will either slide out or be

held in with a screw. Reach as far inside as you can with your brush and get as much lint out as possible. You can also use canned air to clean your sewing machine. It is not just for computers.

It is good to get into the habit of cleaning any visible lint in or around the bobbin case each time you have it open. If you have the time, take out the bobbin case and get the lint in there, as well.

Read in your manual and see where and how often your machine needs to be oiled. Some machines will have parts that do not need addition oiling. They have been permanently lubricated in the factory. If your sewing machine will need oiling, there will probably be a small bottle in the accessories that come with the machine. It is usually adequate to oil your sewing machine once a year. But, that will depend on how much you use it.

5. Zigzag sewing machine

Once a year or so, you might want to remove the cover of your sewing machine and do a more thorough cleaning. If you do not feel comfortable doing this, you can take your sewing machine to a service center and have it done for you. If you are cleaning it yourself, be sure to add a small drop of oil where any shafts run through bushings.

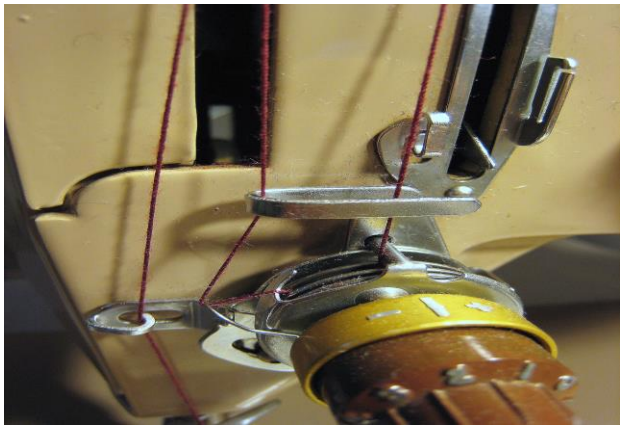
Keeping your sewing machine clean and well maintained will help it last much longer. It will also help it run better. Hopefully, these tips will help you keep your sewing machine in tip top shape so you can enjoy many years of sewing

4.1 .Bottom Threading checking and maintaining

For most machines, the thread must be taken out of the needle in order to wind the bobbin. There is normally a bobbin holder on head of the machine or a separate

bobbin winding assembly is there. The thread runs from the spool through a sequence of guides etc. that are specific to the following

- ✓ Ensure machine is switched off.
- ✓ Take a full bobbin and insert it in bobbin case as far as it will go.
- ✓ Make sure thread comes out of the bobbin in clockwise direction.
- ✓ Pull the thread through the case and under the tension spring on the case.
- ✓ Allow about 3 inches of thread to hang free from bobbin case.
- ✓ Place the bobbin case into the machine with the bar of the case in the slot of the shuttle.\
- ✓ Press on the bobbin case until you hear or feel it click into position.
- ✓ Hold top thread in left hand.
- ✓ Now turn the balance wheel towards yourself by right hand, until bottom thread loop comes out through throat plate.
- ✓ Now grip the loop and pull the bottom thread through throat plate.
- ✓ Pull about 10 cm of thread and place it on machine bed.
- ✓ Look for a tension mechanism and bring the thread downward towards it. The thread should slip between the metal disks of the tension mechanism.



Figs 1, mechanism and bring the thread downward towards

To Replace the Bobbin Case

Hold bobbin case by latch, with thread leading off top of case.Slide case on to stud as far as it will go.

Release latch, and allow about 3 inches of thread to hang free from bobbin case

Press the knee press and pass the thread through the tension assembly and over the check spring.

Lead the thread through the take up lever from right to left.

Pass the thread from top to bottom through the thread guides near faceplate.

Press knee press and lift the pressure roller out towards left side.

Then pass the thread through the thread guide on needle bar.

Thread through the needle eye from left to right.

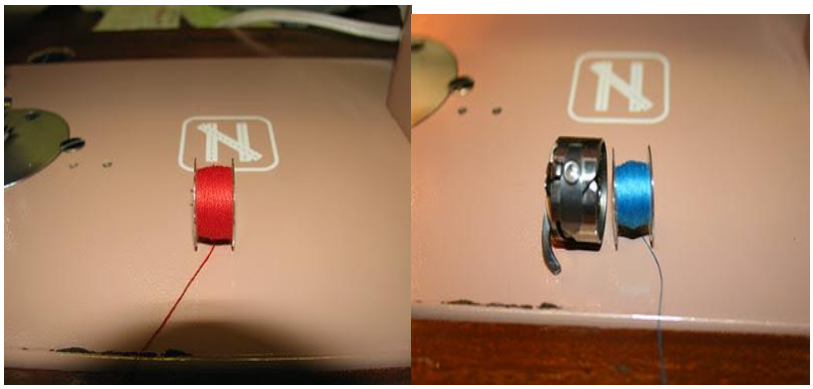
Draw about 3 inches of thread through the needle.

Press knee press and pull the pressure roller down to original position.

4.2 .BOBBIN THREADS REWINDING

For most machines, the thread must be taken out of the needle in order to wind the bobbin. There is normally a bobbin holder on head of the machine or a separate bobbin winding assembly is there. The thread runs from the spool through a sequence of guides etc. that are specific to the type of

Machine.



Place empty bobbin on bobbin-winder spindle.

Press bobbin winder down against motor belt.

Place spool of thread on spool pin.

Thread bobbin winder and bobbin.

Hold thread end and start machine.

When bobbin is full, stop machine.

Cut thread.

Lift bobbin winder away from belt and remove bobbin.

After the bobbin is wound, the machine is re-threaded, the needle is engaged and the bobbin is placed in its area under the throat plate.

Once the bobbin is in place and the machine is threaded, gently turn the wheel of the machine while holding the needle thread off to the side (it should go from the needle under the presser foot and off to the side). This will bring down the needle. The needle will pass down through the throat plate and the needle thread will catch the bobbin thread and pull it up through the throat plate when it comes back up again.

If Thread Does Not Wind Evenly on Bobbin:

Loosen screw that holds bobbin-winding thread guide on bed of machine.

Move thread guide to left if thread winds high on right of bobbin.

Move thread guide to right if thread winds high on left of bobbin.

Tighten thread guide screw

Needle changing When inserting a new needle: Raise the needle bar to its highest position.

Hold the needle with the clearance cut side facing towards the hook.

Loosen the needle clamp screw sufficiently to allow the new needle to be fully inserted.

Insert the shank of the needle as far as it will go

Tighten the needle clamp screw.

Before sewing, check the needle by turning the hand wheel one complete rotation and to make sure the needle is securely in place and does not hit against anything. This is particularly true when using and selecting a stitch for twin needles.

Stitch Length Regulation:

The numbers on either side of the lever represent the approximate number of stitches per inch. The higher the number, the shorter the stitch. In general, lightweight materials require short stitches (a high number setting) and heavyweight materials require longer ones (a low number setting).

To set stitch length:

Loosen thumbnut by turning it to the left.

Move lever to desired stitch length setting.

Tighten thumbnut by turning it to the right until it touches the numbered indicator plate.

Insertion:

When inserting a new needle:

- Raise the needle bar to its highest position.
- Hold the needle with the clearance cut side facing towards the hook.
- Loosen the needle clamp screw sufficiently to allow the new needle to be fully inserted.
- Insert the shank of the needle as far as it will go
- Tighten the needle clamp screw.
- Before sewing, check the needle by turning the hand wheel one complete

rotation and to make sure the needle is securely in place and does not hit against anything.

This is particularly true when using and selecting a stitch for twin needles are:

A. Burr On Hook

Burrs are a dull part, which might be formed when two sharp metallic tips hit each other or sharp tip with flattened surface of any metallic part. There may be burrs on the feed dog needle hole, throat plate needle hole, on the hook point, on the needle guard, on the base opener, on base position finger and on the gib point. Burrs may be

removed with very fine emery cloth or with fine oilstone. Check the needle guard setting because the hook point may be damaged if it is set wrong.

B. Thread Tension

- Check the top threading of the machine and sure that thread is passing from spool to the various thread guides in right manners. Check that the thread is not wrapping around the any thread guides and not passes twice in the tension assembly
- Make sure that the tension on needle thread is not too strong.

C. Needle Plate Hole

It allows needle to go inside to make stitch

D. Material Feeding

It refers to the feeding of the materials; materials can be feed with top(pressure foot), bottom and needle.

And there are three systems in which materials are taking thorough by sewing machine.

Each system has it is own characters of feeding the material.

E. Drop feeding system:

Needle doesn't feed only presser foot and feed dog feeds. And presser foot waits till needle come back. It is found mostly in flat bed machine. In this feeding system the presser roller and feed roller are intermittent.

F. Compound feeding system:

Needle, presser foot and feed dog feeds together, it is found mostly in post bed machine. In this feeding system the presser roller and feed roller are continuous.

G. Unison feeding system:

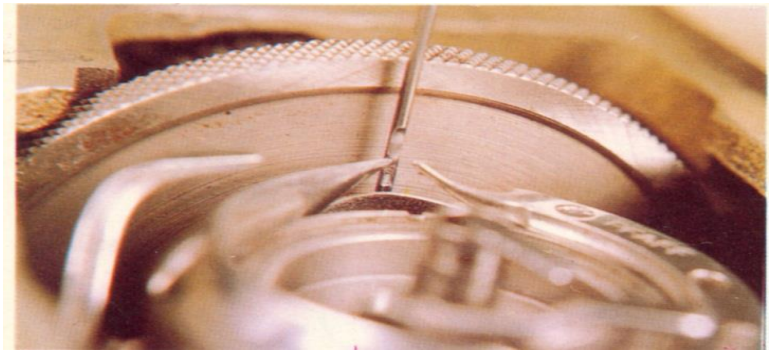
It is like compound feeding system only the difference is that it has two foot, one foot moves the material and the other foot binds the material. It is found mostly in cylindrical arm machine.

Note: **Intermittent**: means the presser foot and feed dog waits till the needle come and touch the material.

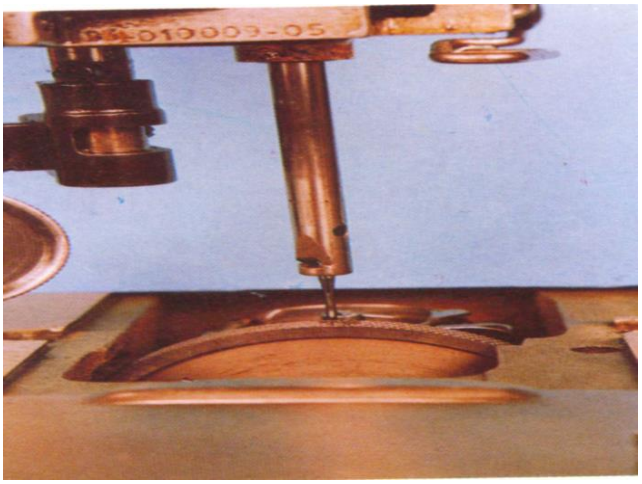
Continuous: means the presser foot and feed dog do not wait till the needle come and touch the material, they roll continuously.

Time out

The needle bar height is set so that the eye of the needle is at right distance below the point of the hook, when the needle bar is in rising position and the hook timing is correct



1st. First set a temporary needle bar height by making sure that the needle bar does not touch the feed or throat plate when it is all the way down. However it must be low enough to have the needle point well below the point of the hook in needle bar rise position.

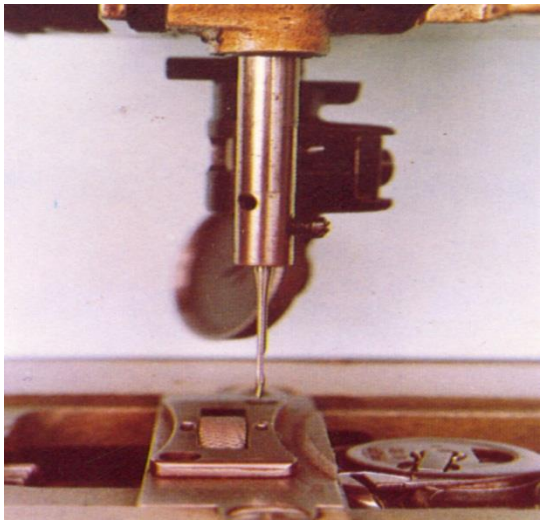


(Figure1)

2nd. This is done by loosening the needle bar clamp screw and sliding the needle bar up or down. After setting tighten the needle bar clamp screw.

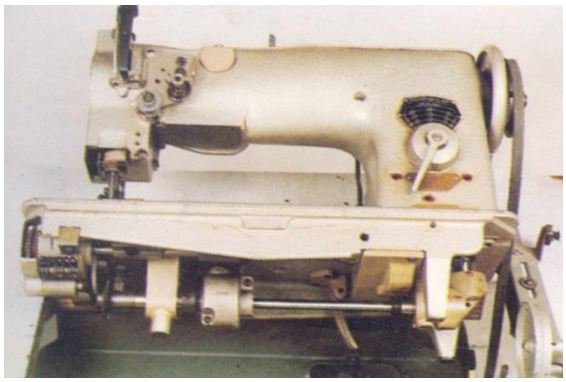
(Figure2)

3rd. Make sure that the needle bar faces the right way with the needle holding screw to the right. The final setting of the needle bar is set once the hook timing is set.



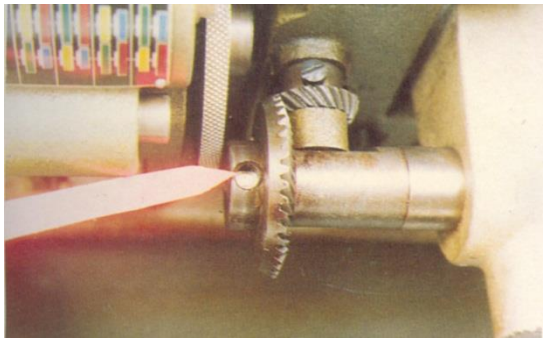
(Figure3)

4th. For hook setting, tilt the machine back on its hinges over the machine rest and locate the set of gears, which drive the vertical hook shaft.



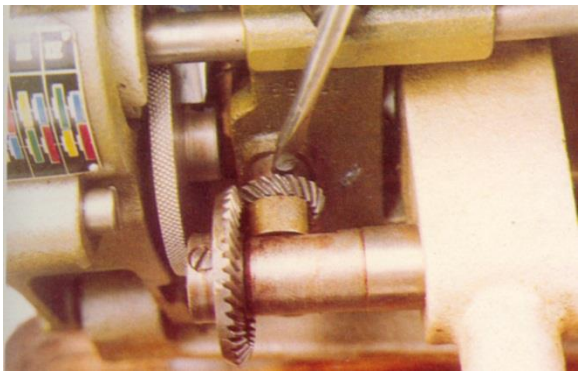
(Figure4)

5th. Check which gear has at least one screw on a flat shaft and which gear has not. To ensure, you can check this by removing, replacing one screw at a time.



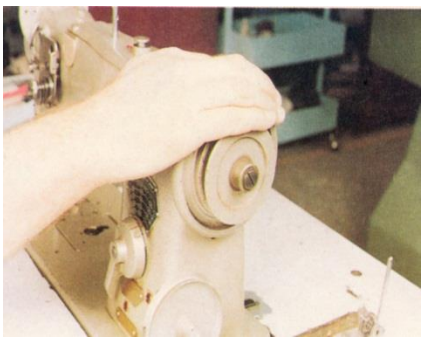
(Figure5)

6th. Undo the screws of the gear, which does not have any screw on a flat in the shaft.



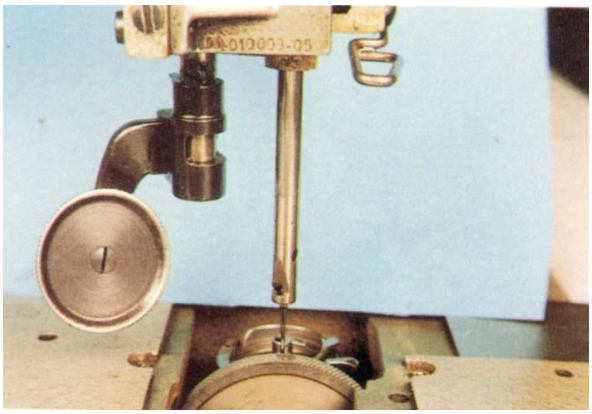
(Figure6)

7th. Whenever the hand wheel needs to be turned, it must always be turned in the normal operating direction. The normal turning direction is towards the operator.



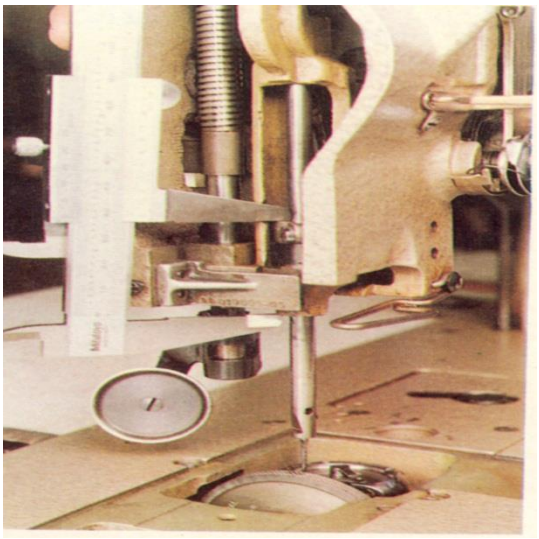
(Figure7)

8th. Turn the hand wheel in the operating direction until the needle bar has reaches the lowest point of its stroke.



(Figure8)

9th. Continue to turn the hand wheel in the same direction until the needle has risen 2 mm from the lowest point of its stroke. This can be accurately measured with a rule, a vernier caliper or a 2 mm gauge.

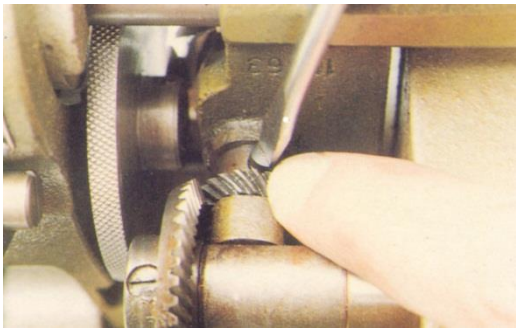


(Figure9)

10th. Now the hook may be turned until the point of hook is directly opposite the center line of the needle. Make sure that the needle bar does not move during this adjustment.

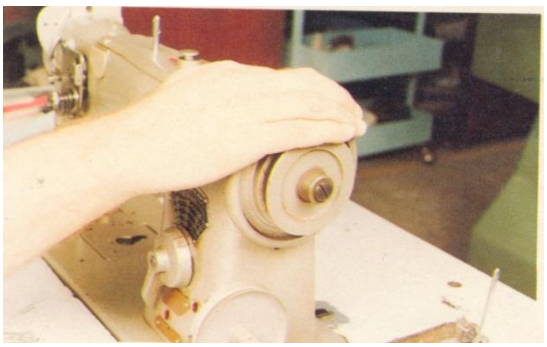
(Figure10)

11th. Nip up one of the gear screws previously loosened by making sure that there is no end play (up and down movement) in the hook shaft.



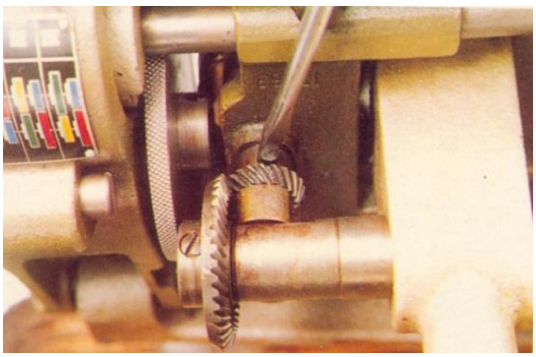
(Figure11)

12th. Turn the hand wheel of the machine one complete turn and checks to make sure your settings are correct. If the settings are correct then go on to next step, if not, repeat these exercises once again.



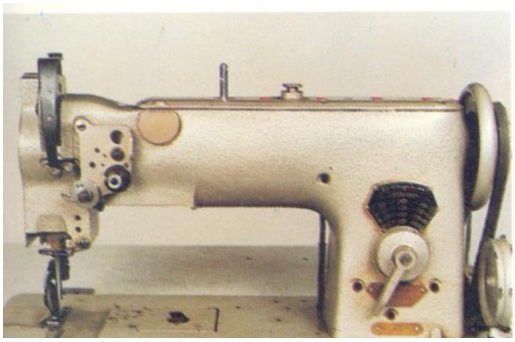
(Figure12)

13th. Tighten both gear screws securely



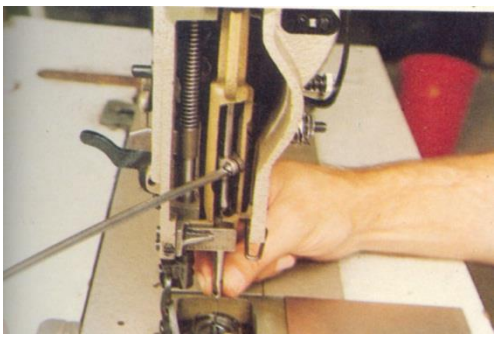
(Figure13)

14th. Replace the machine head back on its normal position.



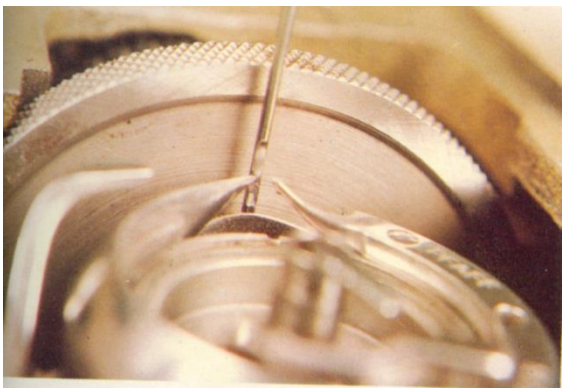
(Figure14)

15th. Loosen the needle bar clamp screw.



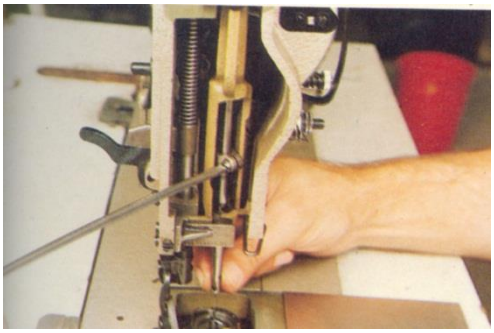
(Figure15)

16th. Raise or lower the needle bar until the point of the hook is 1 mm above the top of the needle eye. This is for light material. However it should be 2 mm to 3 mm for leather or heavy material.



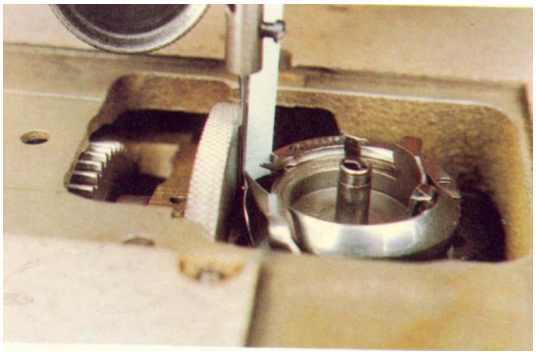
(Figure16)

17th. Make sure you do not turn the needle bar during this process and securely tighten the needle bar clamp screw.



(Figure17)

18th. Distance between needle and hook point should not be more than 0.1 mm or the thickness of a piece of writing paper. Too much distance between the two will miss the thread loop and if not enough distance hook point will hit the needle.



(Figure18)

The point of the hook must never push or deflect the needle.

To make the adjustment of distance between hook point and needle tip the machine over on its back.

Now loosen the two large and big screws, which hold the hook saddle in place.

Loosen the screws holding the larger of the 2 hook driving gears. Do not move the gear.

The whole hook saddle may now be moved closer to or further from the needle.

Once the correct position is reached, tighten both hook saddle screws

Operation sheet 1

Operation title: - Cleaning, checking, maintaining and storing tools and equipment

Purpose	To acquire the trainees with sew operation and maintenance practice
Equipment ,tools and materials	Supplies and equipment needed or useful for machine sewing include these: • Scissors • Machine needle • Cutter • Pincer • Oil
Conditions or situations for the operations	• All tools, equipment's and materials should be available on time when required. .Appropriate table, working area/ workshop to Cleaning, checking, maintaining and storing tools and equipment
Procedures	1. Clean sewing machine 2. Do Pre operation 3. Check needle position 4. Bobbin wending 5. Insert bobbin with bobbin case
Precautions	• Care should be taken while connecting with electric power, sewing , machine Preparing materials, tools and equipment are according to inseminator command. •
Quality criteria	• Did personal protective equipment worn while performing basic stitching sew machine • Did trainees the component of the Performing sewing different shapes and components • proper without leakage • The machine functional for sew separation

LAP Test Practical Demonstration

Cleaning, checking, maintaining and storing tools and equipment

Name: _____ **Date:** _____

Time started: _____ **Time finished:** _____

Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 2:00hours.

Task 1: make sure the sewing machine have the upper maintaining

Task 2: start Cleaning and see what both thread loop formation look like

Task 3: start checking, adjusting tension either the bobbin thread loops or spool thread loops

where not proper

Task 4: at the last check both loops threads locked midway between the two layers of leather

Instructions:

Synthetic sewing different shapes and components

1.Paper Exercises

1,steps on figs 1-18.

Request your teacher for evaluation and feedback of your work

Note: **Satisfactory rating - 18points Unsatisfactory - below 18points**

Self-Check -4 Written Test

Name: _____ **Date:** _____

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

Answer the following questions:- (Total marks:- 5x2=10)

1. Write down four steps to fix needles on the needle bar?
2. Define how burrs are formed?
3. Explain any drop feeding system?
4. Explain any compound feeding system?

If you don't keep your machine from dust and lint what problem will be appear on

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

Information sheet -5 Identifying safety of operator and work place

5.1. For the safety of the operator:

Wear approved footwear and clothing within the workshop.

Wear a hair band or tie your hair back in case of hair longer than shoulder length.

Avoid wearing loose clothing.

- Operating position:
- Sit squarely on your chair within reach of the material and m/c controls.
- Your thighs should be parallel to the floor when seated.
- Keep your fingers away from the needle.
- One operator on a m/c.
- In case of an accident, no matter how minor, report it to your supervisor.
- Know your fire drill.
- Do not try to make your own electrical repairs.

Do not push the work through your hands, let the m/c feed the work.

5.2 For the safety of the m/c:

- ✓ Cleaning, proper oiling and covering of the m/c.
- ✓ Thorough knowledge of m/c prior to operating them.
- ✓ Instruction to be properly followed.
- ✓ After finishing off with the work, raise the pressure roller or put a piece of material beneath it.
- ✓ No release of power from the m/c without first removing the thread from the needle.
- ✓ Bobbin case base latch to be properly closed before closing of cover plate.
- ✓ Check for any looseness in the screws holding the throat plate, gibb screws, etc.
- ✓ Ensure that proper threading and needle insertion has been done.

BENCH LAYOUT

1. Keep work within your arm's reach.

    a. With arms straight, men have an average reach of 46 cm.

    b. With arms straight, women have an average reach of 43 cm.

    c. With elbows bent, women have an average reach of 27 cm.

    d. With elbows bent, women have an average reach of 27 cm.

2. Keep the work within your reach on the bench.

3.Have your workstation adjusted to prevent reaching to the floor.

4. Keep your tools in fixed location.

    a. Inside the arm or under the balance wheel.

    b.Between the head and the bobbin winder.

5. Wind bobbin during working.

6. Inspect your work while cutting thread and trimming.

7.Pick up the components simultaneously during working/ stitching.

8. Keep both hands on the work. (Avoid keeping one hand on the balance wheel)

9.Stack components in the position they would be stitched. This avoids turning the work around.

Self-Check-5 Written Test

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Illustrations may be necessary to

aid some explanations/answers.

1. Short answer questions:- (10point)

1. Define slip stitching.
2. Define the checklist for the good stitch formation
3. What will be the safety precautions for needle breakage?
4. Define seam puckering.
5. Define the two points of bench layout.

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

LG #53	LO #2- Set up machine
Instruction sheet	

This learning guide is developed to provide you the necessary information regarding

the following content coverage and topic

- ✓ Adjusting and setting up of sewing machine
- ✓ Setting tension according to specifications
- ✓ Cleaning and maintaining closing section machines
- ✓ Maintaining Records

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 –

- Closing section machines are set up and adjusted for operation according to task requirements.
- Tension is set according to specifications
- Closing section machines are routinely cleaned and maintained.
- Records are maintained as per work guideline

Learning Activities:-

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

10. Read the information written in the “Information Sheet 3”.
11. Accomplish the “Self-check 3”
12. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet 3.
13. Submit your accomplished Self-check. This will form part of your training portfolio.
14. Read the information written in the “Information Sheet 4”

Instruction Sheet-1 Adjusting and setting up of sewing machine

1. 1. Tension Adjustment:

Tension refers to the force that is applied by the machine on your thread. You can also effect tension by the amount of pull or push you apply to the material as you feed

it through under the needle - you should not apply force. Instead, just use your hands to guide the material through. Let the feed dogs actually feed the material through.

There are two areas in which you can adjust tension. The upper thread (needle thread - coming from the spool) and the bobbin thread each have tension.

Too little tension can cause weak seams, which can be pulled apart easily and final seam will loose. Adjust to a higher tension. Too much tension causes a seam puckering due to high stress and pressure on thread. Rectify it by lowering the related tension assemblies.

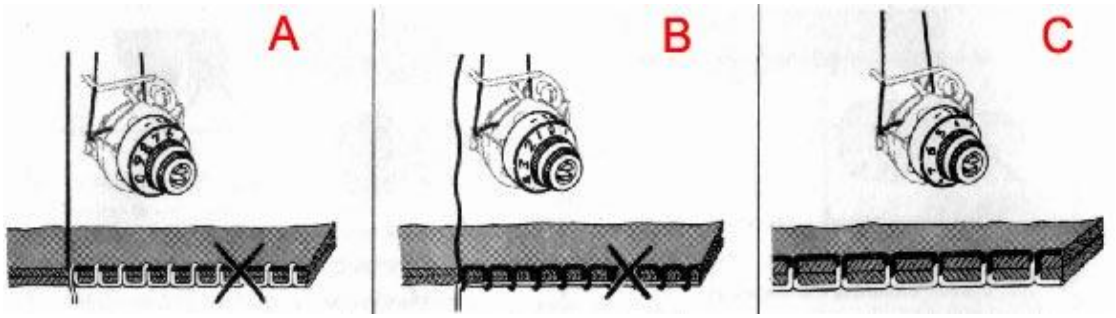
C. Needle Thread Tension:

This is the most likely place to find a problem. Generally the tension ranges from low to high in number, with high being the tightest.

The numbers on the dial represent the degree of tension on the needle thread. The higher the number, the tighter the thread.

Correct needle-thread tension is important because too tight a thread will cause material

to pucker. Too loose a thread, on the other hand, will produce slack stitches and weak seams.



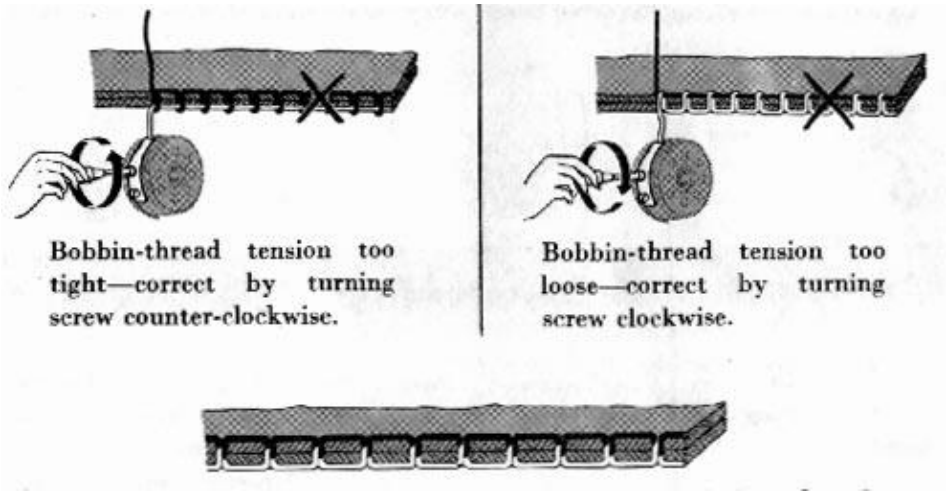
1 = Needle-thread tension too tight -- correct by setting dial to lower number

2 = Needle-thread tension too loose -- correct by setting dial to higher number.

3= A perfectly locked stitch results with upper and lower tensions balanced so that needle and bobbin threads are drawn equally into fabric.

D. Bobbin Tension:

With some machines, a screw is present which controls the bobbin tension.



1.2. Making adjustments:

before you start adjusting your tension, make these three checks. This is very important.

1. Be certain your machine is threaded properly. Even long time sewers can miss a thread guide.
2. Be sure your bobbin is properly installed.
3. Make sure your needle is inserted properly.

After going through the three checks, you may have to adjust the tension in order to sew a good stitch. Each time you have adjusted, sew a line of stitching. You should only have to make small, slight adjustments to correct your stitch.

NECESSARY SETTINGS IN SEWING M/C:

- ✓ With the operator seated at the machine comfortably, thighs parallel to the floor with feet resting on the treadle, adjust the seat or machine height.
- ✓ Must sit in front of the needle bar.
- ✓ Local light (32 watts) is a must on each m/c.
- ✓ Tension release must be operational, either by knee- press or pedal.
- ✓ A knee press is preferred to a foot lifter; it should not touch the thigh and should be 3cm away so as not to touch the thigh.

- ✓ Motor clutch to be adjusted for close contact.
- ✓ Treadle to be positioned just above parallel so that when it is pressed, it is activated, ensuring less fatigue for the operator..
- ✓ Pitman's rod and not chain to be attached from clutch to treadle with no extra movement.
- ✓ Single board treadle 1' X 1' is better for control.
- ✓ Thread guides to be on the machine head. All thread guides to be intact.
- ✓ Thread guide must be directly above the spool (twice the height of the spool from the top of the spool) to prevent the thread from snagging.
- ✓ Thread guide on top of arm (head) is vertical. Next one must be parallel to the head.
- ✓ Thread guide just before threading the needle is important for thread control.
- ✓ Threads stand to be in good condition and adjusted to suit spool height.
- ✓ Bobbin winder to be operational.
- ✓ Check spring to be operational.
- ✓ Needle holder must not fall off.
- ✓ Tension discs must be of hard metal and smooth and the tension spring must be firm so that one twist of the thumbnut makes a difference.
- ✓ Drip tray to be installed.
- ✓ Transmission belts to be continuous or in case leather belt has to be used, it should be 3/ 8'' (round) leather belt so as to fill the pulley cavity (for the drive which comes from the sides of the pulley).
- ✓ Belt should have 13- 16mm flexibility.
- ✓ Motor pulley must be in the center of the cut out to avoid belt erosion.
- ✓ The on- off switch must be 2'' inside the tabletop.
- ✓ Pressure roller to be as closes to the needle as possible and should be central to the needle.

- ✓ Pressure roller lift height to be 10mm.
- ✓ Pressure roller spring tension to be adjusted so as not to mark the leather.
- ✓ Feed roller or dog to have the tooth height only above the needle plate.
- ✓ Tension of the clutch to be adjusted to stop the machine when the treadle is released but still light to depress for power.
- ✓ Stitch length regulator must be non- slip (with washer and spring attachment)

Self-Check 1 Written Test

Name: _____ **Date:** _____

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

1. Short answer questions:- (10*1=10)

1. Define top tension.
2. Define bottom tension.
3. How will you correct top tension?
4. How will you correct bottom tension?

5. What are the causes of top tension?
6. What are the causes of bottom tension?
7. What is the roll of tension disk assembly in adjusting the tension?
8. Define the roll of bobbin case assembly in adjusting the tension.
9. What is the roll of threading guides regarding tension?
10. What should be the minimum distance between the spool and first guide on the thread stand?

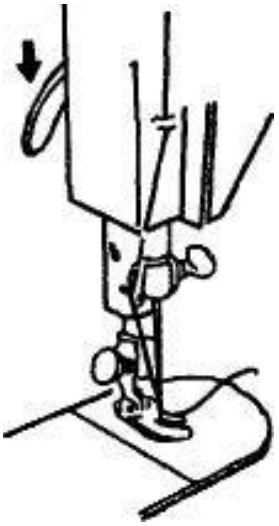
Instruction Sheet-2 Setting tension according to specifications

2.1. Change the thread tensions

1. The tension of the upper thread should be the same as the tension of the lower thread. Both threads should fasten together in the centre of the sewn cloth. When both tensions are right/ the stitches on both sides of the sewn cloth are the same size. To get the right tensions you must:

a) Be sure the presser foot is down when you sew

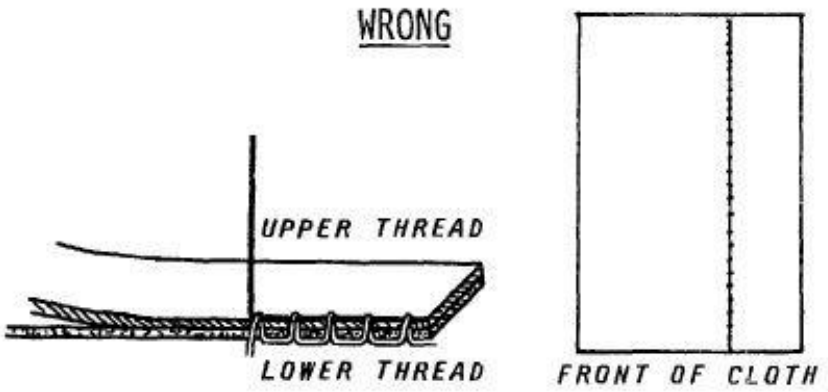
b) use the same cotton for both the upper thread and the lower thread.



Figs 1 presser foot

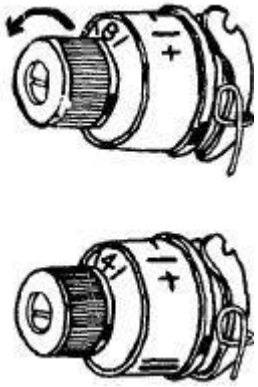
NOTE: The thickness of the cloth you are sewing may affect the tensions. You will then need to change the thread tensions/ as shown below.

2. When the tension of the upper thread is too tight, or when the tension of the lower thread is too loose, the sewing looks like this!



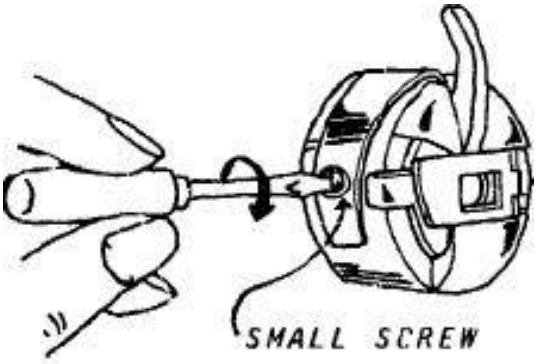
Figs 2 thread looser

To make the tension of the upper thread looser, turn the tension regulator so a lower number is on top, (if the tension regulator is on the side of the machine, turn it backwards or away from you. If it is on the front, turn it to the left.)



Figs 2 tension thread tighter

To make the tension of the lower thread tighter: take out the bobbin case, find the small screw, use a small screwdriver to tighten the screw.



Figs 3 tension of the upper thread is too loose

3. When the tension of the upper thread is too loose, or when the tension of the lower thread is too tight, the sewing looks like this:

To make the tension of the upper thread tighter, turn the tension regulator so a higher number is on top. (If the tension regulator is on the side of the machine, turn it forward or towards you. If it is on the front, turn it to the right.)

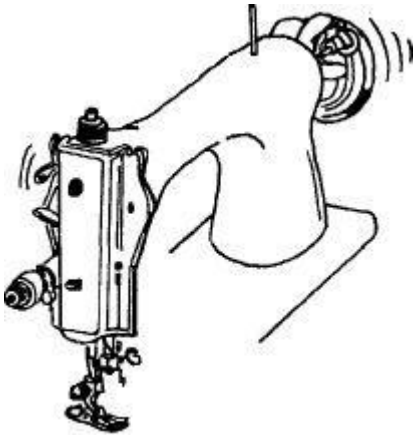
To make the tension of the lower thread looser: take out the bobbin case, find the small screw, use a small screwdriver to loosen the screw.

2.2. Oiling and cleaning sewing machine by Following manufacturer's instruction Sewing machine oil.

1. Do not use any other kind of oil. Put only one or two drops of oil at each hole. Too much oil will get on the sewing.

Figs 4 holes take out the needle,

2. When you have put oil in all the holes take out the needle, and run the machine very fast for a few minutes so the oil will spread to all the places it is needed.



IMPORTANT: when you are oiling the machine, do not loosen Any of the screws underneath the machine.

Taking care of the machine

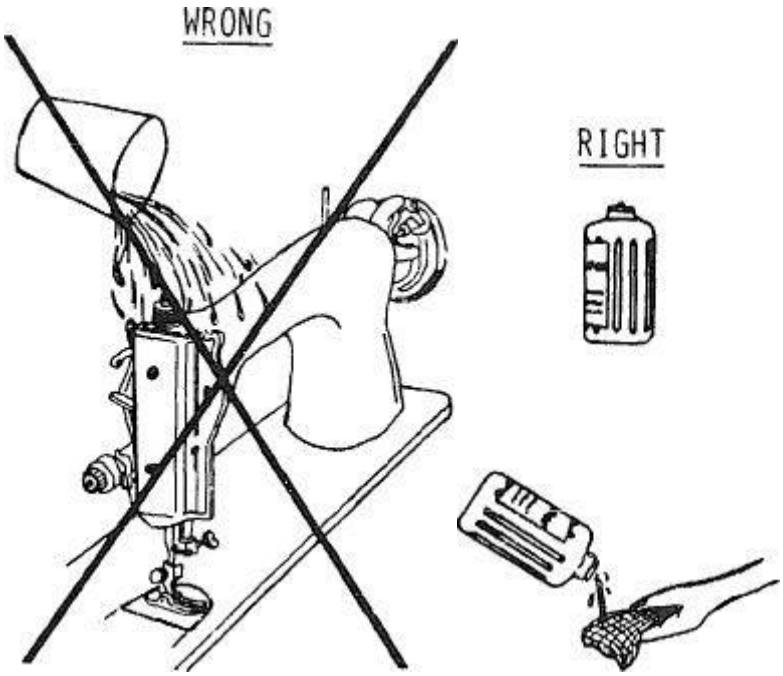
To keep your machine running well, clean it and oil it after you have done a lot of sewing, and oil it once more before*you start sewing again, be especially careful to clean the feed dog and the shuttle race often.

2.3. To clean the machine

To clean the machine, or any parts, do not use water, use kerosene

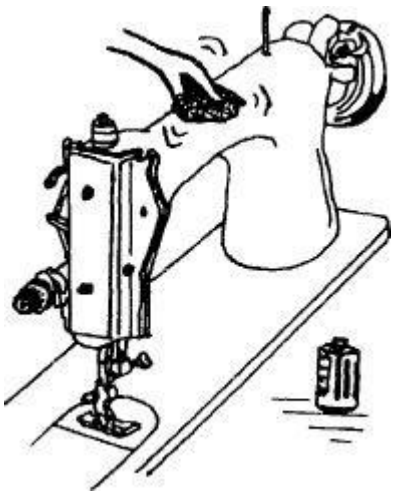
1. Soak a cloth in kerosene

,



Figs 5 clean all parts of the machine

2. Use a cloth to clean all parts of the machine and make them shiny.



Figs 6 kerosene with a clean cloth.

3. Wipe away the kerosene with a clean cloth.

2.4. identification and report major problems to the supervisor

Report any problems

● Report to supervisor/manager any problems around machines and guards, for example: Broken or missing guards and devices.

● loose parts, unusual noise, leaks, or vibration.

● Strange odours, heat, smoke, dust, fumes.

● Messy work area and floor, not enough light.

Self check 2	**Written Test**

Instructions: **Write all your answers in the provided answer sheet (point10)**

1. What is the cause of needle breakage?
2. Write at least 8 minor problem of sewing machine?
3. How can we prevent breakage of thread? Explain
4. Discuses about tension adjustments and write which type of adjusting system will be best to perform good stitch formation?
5. Which career shall be performing oiling and cleaning?

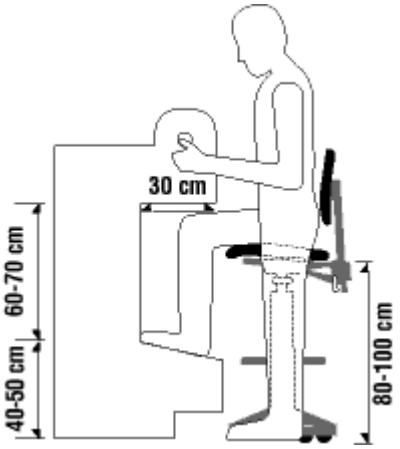
Note: **Satisfactory rating - 10points Unsatisfactory - 10below 4points**

Information sheet -3 Cleaning and maintaining closing section machines

maintaining closing section machines are learned in the (LO1)information 2-3

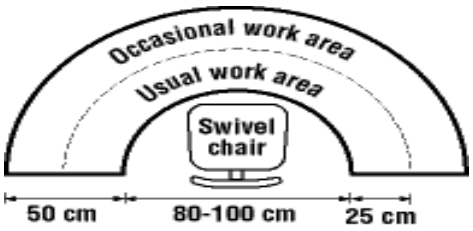
3.1. Closing section machines or Sitting/Standing

- Continuous standing or sitting while working is a common source of discomfort and fatigue. Frequent changes of body positions, including alternating between sitting and standing, helps to avoid fatigue.
- Use a swivel chair with an adjustable seat height.
- Adjust the chair seat height to 25-35 cm (about 10 -14 in.) below the work surface.
- Use a footrest with a height of 40-50 cm (about 16-20 in.).



Example of a Semi-circular Workstation

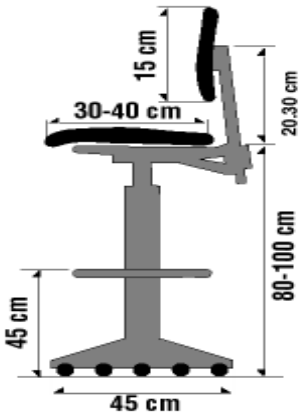
- Arrange work in a semi-circle.
- Use a swivel chair to reduce body twisting, to allow easy movements, and to reduce side-to-side motions.
- Use sloping work tables whenever possible to reduce bending, and to encourage an upright position while sitting or standing.



1. Examples of a Chair for Sitting/Standing clearing

- Whenever possible, a worker should be able to work sitting or standing at will.
- Ensure that the seat has a minimum width of 40 cm (about 16 in.).
- Choose backrests that are contoured vertically and horizontally.
- Use a seat covering of non-slip, breathable fabric.
- Select seat padding that is about 2-3 cm (1 in.) thick.

- Provide a chair that can fold up and be stored out of the way where space is limited.
- Ensure that chairs have a back support.
- Provide a chair for resting purposes even when work can only be done standing.
- Adjust the workstation to the proper height



2. How Job Design can reduce ill Effects of Working in a Standing Position

The basic principles of good job design for standing work are:

- Change working positions frequently so that working in one position is of a reasonably short duration.
- Avoid extreme bending, stretching and twisting.
- Pace work appropriately.
- Allow workers suitable rest periods to relax; exercises may also help.
- Provide instruction on proper work practices and the use of rest breaks.
- Allow workers an adjustment period when they return to work after an absence for vacation or illness so they can gradually return to a regular work pace.

3. How Work Practices can Reduce Ill Effects of Working in a Standing Position

A well-designed workplace combine with a well-designed job make it possible to work in a balanced position without unnecessary strain on the body. Although

the actual performance of the task depends on the worker (including how the worker stands, moves or lifts), work practices can make the job either safer or more hazardous. Proper training shapes individual work habits and by a supervisor who encourages the worker to use the skills they have learned.

It is important that the worker is informed of health hazards in the workplace. The worker needs to understand which body movements and positions contribute to discomfort and that the conditions causing mild discomfort can lead to chronic injury in the long term. Worker training should also contain information on how to adjust specific workplace layouts to the individual's advantage to reduce or eliminate health hazards.

The worker should be aware that rest periods are important elements of the work. Rest periods should be used to relax when muscles are tired, to move around when muscles are stiff, to walk when work restricts the worker's ability to change postures or positions, and so on. The worker should also be encouraged to report discomforts experienced during work. It may result in correcting working conditions.

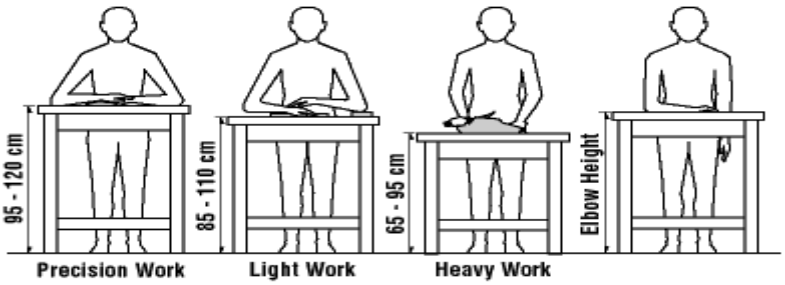
All these elements training and supervision, coupled with active worker input- can result in sound work practices. It must be remembered that a well-designed job and workplace are essential to healthy and safe work. Without these, good work practices cannot be effective.

4. Example of a Workstation Designed for a Standing Worker

Workplace design should fit the variety of workers' shapes and sizes and provide support for the completion of different tasks.

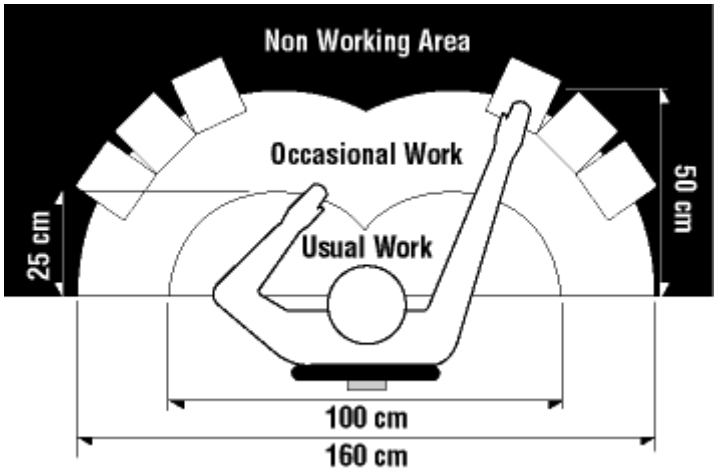
Different tasks require different work surface heights:

- Precision work, such as writing or electronic assembly - 5 cm above elbow height; elbow support is needed.
- Light work, such as assembly line or mechanical jobs - about 5-10 cm below elbow height.
- Heavy work, demanding downward forces - from 20-40 cm below elbow height.

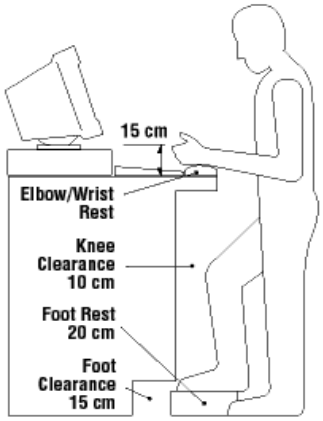


5. What Can Workers Do to Reduce Discomfort or Working in Standing

- Adjust the height of the work according to body dimensions. Use elbow height as the guide.
- Organize your work so that the usual operations are done within easy reach.



- Always face the object of work.
- Keep body close to the work.
- Adjust the workplace to get enough space to change working position.
- Use a foot rail or portable footrest to shift body weight from both to one or the other leg. Use a seat whenever possible while working, or at least when the work process allows for rest.



6. What Should Workers Avoid While Working in Standing

- Avoid reaching behind the shoulder line. Shifting feet to face the object is the recommended way.
- Avoid overreaching beyond the point of comfort.
- Avoid reaching above shoulder line.

Self-Check -3 Written Test

Name: _____ **Date:** _____

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

1. <u>Fill in the blanks:-</u> **(Total 10marks)**

1. _____is the scientific study of the relationship between the man, the machine & the environment.
2. _____is concerned with the determination of speed.
3. _____ tells about the human behavior and human potential under various working conditions and under the influence of mental strain fatigue etc.

4. _____has notable impact on its ability to be seen or visualize.
5. The time required to detect a small object can increase 4 times if the contrast is reduced by_____.

Note: **Satisfactory rating - 10points Unsatisfactory - 10below 4points**

Information sheet -4 Maintaining Records

4.1. Reporting and recording machine accidents and incidents

A. An accident what we have to be records .

Refers to an event or sequences of events which is/are unplanned, undesired that causes an unintended injury, death or property damage.

B. An incident

is an undesired event that may cause personal harm or other damage.

Dangerous incident means an incident in relation to a workplace that exposes a worker or any other person to a serious risk to their health or safety emanating from an immediate or imminent exposure to:

a) An uncontrolled escape, spillage or leakage of a substance; or

b) An uncontrolled implosion, explosion or fire; or

c) An uncontrolled escape of gas or steam; or

d) An uncontrolled escape of a pressurized substance; or

e) Electric shock; or

f) The fall or release from a height of any plant, substance or thing; or

g) the collapse, overturning, failure or malfunction of, or damage to, any plant that is required to be authorized for use in accordance with the regulations; or

h) The collapse or partial collapse of a structure; or

i) The collapse or failure of an excavation or of any shoring supporting an excavation or

j) The inrush of water, mud or gas in workings, in an underground excavation or tunnel; or

k) The interruption of the main system of ventilation in an underground excavation or tunnel, or

l) Any other event prescribed by the regulations;

4.2. What must be reported

Deaths and injuries do not have to be automatically reported, but must be reported if they occur as the result of an accident arising out of or in connection with work.

An accident is a separate event to a death or injury, and is simply more than an event; it is something harmful that happens unexpectedly. When deciding if the accident that led to the death or injury has arisen out of or in connection to work, the key issues to consider are whether the accident was related to:

■ the way in which the work was carried out;

■ Any machinery, plant, substances or equipment used for work; and

■ the condition of the site or premises where the accident happened.

If any of the above factors were related to the cause of the accident, then it is likely That the injury will need to be reported to the enforcing authority. If none of the above factors are satisfied, it is likely that you will not be required to send a report

4.3. Reporting sheet of accident or incident

What happened?	Accident or incident
A small electrical fire starts in the building, everyone is evacuated safely	

A passenger refuses to pay his fare and shouts abuse at the train manager	
A man falls a ladder and injures his back	
A shelf falls on a store man he bruises his head and arms	
Worker gets a skin disease from handling chemicals at work	
A batch of protective gloves is found to have holes in them before they are given out to the work force	
A person working outside hits an electrical cable he has a severe electrical shock.	

Self-Check -4 Written Test

Written Test

Short answer total (point6)

1.What must be reported(2point)

2.An accident what we have to be records (2point)

3. An incident (2point)

Note: **Satisfactory rating - 100points Unsatisfactory - 100below 4points**

LG #54	LO #3 Perform sewing

Instruction sheet

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

- ✓ Controlling sewing machine.
- ✓ Identifying sewing machine parts and functions
- ✓ Performing basic stitching operation.
  - 3.3.1 paper stitching exercise
  - 3.3.2 synthetic materials stitching exercise
- ✓ Positioning of material accurately consistent with stitch requirement
- ✓ Performing sewing different shapes and components.
- ✓ Cleaning and oiling sewing machine
- ✓ Diagnosing and rectifying minor problems in the sewing machine
- ✓ Carrying out sewing of components

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 –

- Sewing machine is properly controlled.
- Sewing machine parts and functions are identified
- Basic stitching operation skills are practiced.
- Material is positioned and stitched accurately in consistent with stitching requirements
- The sewing for different shapes and components is performed.
- Sewing machine is oiled and cleaned following manufacturer's instructions
- Minor problems in the sewing machine are diagnosed and rectified according to specifications and OHS practices.

Learning Activities:-

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

if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet 3.

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

14. Read the information written in the "Information Sheet 4"

15. If you earned a satisfactory evaluation proceed to "Information Sheet 5. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet 4.

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

17. Read the information written in the "Information Sheet 5

18. If you earned a satisfactory evaluation proceed to "Information Sheet 6 However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet 5

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

20. Read the information written in the "Information Sheet 6

21. If you earned a satisfactory evaluation proceed to "Information Sheet 7 However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet 6

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

23. Read the information written in the "Information Sheet 7

24. If you earned a satisfactory evaluation proceed to "Information Sheet 8 However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet 7

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

26. Read the information written in the "Information Sheet 8

Information sheet -1 Controlling sewing machine.

1.1. Controlling sewing machine.

For most machines, the thread must be taken out of the needle in order to wind the bobbin. There is normally a bobbin holder on head of the machine or a separate bobbin winding assembly is there. The thread runs from the spool through a sequence of guides etc. that are specific to the type of machine.

A. Pars of Top Thread the Machine

- Turn hand wheel toward you to raise take-up lever to its highest position.
- Place spool of thread on spool pin.
- Lead thread through the top-threading guide just above the thread spool on the thread stand. The distance between the thread guide and thread spool must be at least twice the length of the spool, from the top of the spool being used.
- Now lead the thread through the threads guides from top to bottom on the

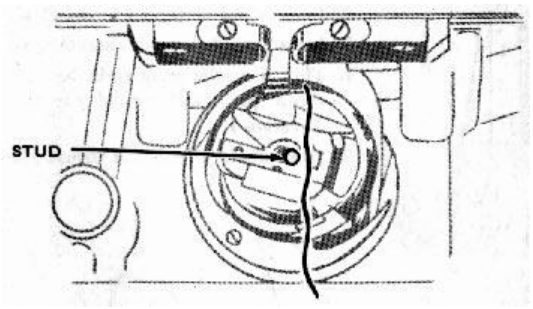
machine head.

- Press the knee press and pass the thread through the tension assembly and over the check spring.
- Lead the thread through the take up lever from right to left.
- Pass the thread from top to bottom through the thread guides near faceplate.
- Press knee press and lift the pressure roller out towards left side.
- Then pass the thread through the thread guide on needle bar.
- Thread through the needle eye from left to right.
- Draw about 3 inches of thread through the needle.
- Press knee press and pull the pressure roller down to original position.

B. Bottom Threading:

- ✓ Ensure machine is switched off.
- ✓ Take a full bobbin and insert it in bobbin case as far as it will go.
- ✓ Make sure thread comes out of the bobbin in clockwise direction.
- ✓ Pull the thread through the case and under the tension spring on the case.
- ✓ Allow about 3 inches of thread to hang free from bobbin case.
- ✓ Place the bobbin case into the machine with the bar of the case in the slot of the shuttle.\
- ✓ Press on the bobbin case until you hear or feel it click into position.
- ✓ Hold top thread in left hand.
- ✓ Now turn the balance wheel towards yourself by right hand, until bottom thread loop comes out through throat plate.
- ✓ Now grip the loop and pull the bottom thread through throat plate.

✓ Pull about 10 cm of thread and place it on machine bed.



C. To Replace the Bobbin Case -

- Hold bobbin case by latch, with thread leading off top of case.
- Slide case on to stud as far as it will go.
- Release latch, and allow about 3 inches of thread to hang free from bobbin case.

D. BOBBIN THREADS REWINDING:

For most machines, the thread must be taken out of the needle in order to wind the bobbin. There is normally a bobbin holder on head of the machine or a separate bobbin winding assembly is there. The thread runs from the spool through a sequence of guides etc. that are specific to the type of machine.

1. Place empty bobbin on bobbin-winder spindle.
2. Press bobbin winder down against motor belt.
3. Place spool of thread on spool pin.
4. Thread bobbin winder and bobbin.
5. Hold thread end and start machine.
6. When bobbin is full, stop machine.
7. Cut thread.
8. Lift bobbin winder away from belt and remove bobbin.
9. After the bobbin is wound, the machine is re-threaded, the needle is engaged and the bobbin is placed in its area under the throat plate.
10. Once the bobbin is in place and the machine is threaded, gently turn the wheel of the machine while holding the needle thread off to the side (it should go from the

needle under the presser foot and off to the side). This will bring down the needle. The needle will pass down through the throat plate and the needle thread will catch the bobbin thread and pull it up through the throat plate when it comes back up again.

E. If Thread Does Not Wind Evenly on Bobbin:

- Loosen screw that holds bobbin-winding thread guide on bed of machine.
- Move thread guide to left if thread winds high on right of bobbin.
- Move thread guide to right if thread winds high on left of bobbin.
- Tighten thread guide screw.

F. NEEDLE CHANGING:

- ✓ When inserting a new needle:
- ✓ Raise the needle bar to its highest position.
- ✓ Hold the needle with the clearance cut side facing towards the hook.
- ✓ Loosen the needle clamp screw sufficiently to allow the new needle to be fully inserted.
- ✓ Insert the shank of the needle as far as it will go
- ✓ Tighten the needle clamp screw.
- ✓ Before sewing, check the needle by turning the hand wheel one complete rotation and to make sure the needle is securely in place and does not hit against anything. This is particularly true when using and selecting a stitch for twin needles.

\

Self-Check 1 Written Test

Name: _____ **Date:** _____

Short answer

1. Lest Pars of Top Thread the Machine (point2)

---

2. Needle changing (point2)

--- --- ---

3. Replace the Bobbin Case (point2)

--- --- --- ---

Note: **Satisfactory rating - 3points** **Unsatisfactory - 3below points**

Information sheet -2 Identifying sewing machine parts and functions

1.1. Controlling sewing machine.

Sewing machine control is the basic necessity and important part for stitching by machine. Operator should learn to stitch at various machine speeds and be able to negotiate stitching of components at various curves and edges. The operator should learn to operate the machine with foot paddle control and by activating it in various ways; needle can be positioned accordingly during stitching.

The Tasks Of The Sewing Machine Operator Are:

- ✓ Activates and adjusts machine controls to regulate stitching speed and length
- ✓ Adjust the thread tension.
- ✓ Activates sewing machine to join, reinforce, or decorate materials.
- ✓ Positions materials through feed rollers and guides, or positions and maneuvers under sewing machine presser foot and needle during operation.
- ✓ Examines the finished articles to verify conformance to standards.
- ✓ Places spools of thread, cord, or other materials on spindles, inserts bobbin, and threads ends through machine guides and components.
- ✓ Records amount of materials processed in production batch.
- ✓ Removes finished materials from sewing machine.
- ✓ Positions and marks patterns on materials to prepare for sewing.

- ✓ Replaces needles, sands rough areas of needles with sandpaper, and cleans and oils sewing machines to maintain equipment.
- ✓ Selects supplies, such as binding, cord, or thread, according to specifications or color of material.
- ✓ Mounts attachments, such as lining trimmer, thread trimmer, and adjusts machine guides according to specifications.
- ✓ Monitors machine operation to detect problems, such as defective stitching, breaks in thread, or machine malfunction.
- ✓ Folds or fits together materials to prepare for machine sewing

1.2. Required Knowledge For Sewing Machine Operators

A. Mechanical. Knowledge of machines and tools, including their designs, uses, repair, and maintenance.

B. **Production and Processing.** Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.

1.3. Abilities Required For Sewing Machine Operators

1. Manual Dexterity. The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble components.

2. **Arm-Hand Steadiness** . The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

3. **Visualization** . The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

4. **Finger Dexterity.** The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

5.**Near Vision** . The ability to see details at close range (within a few feet of the

observer).

6. **Control Precision.** The ability to quickly and repeatedly adjust the controls of a machine to exact positions.

7. **Visual Color Discrimination** . The ability to match or detect differences between colors, including shades of color and brightness.

8. **Wrist-Finger Speed** . The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

9. **Problem Sensitivity** . The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

1.4 . IDENTIFICATION OF MACHINE PARTS

A. Parts under the table:

a. M/c on/ off switch: It helps to connect and disconnect the power from main channel to motor.

b. Treadle/ Paddle: It works, as an accelerator, like depressing front part of the treadle will start and depressing back part will stop the m/c.

c. Leg/ Stand: Holds the m/c in vertical position & allows height adjustment accordingly.

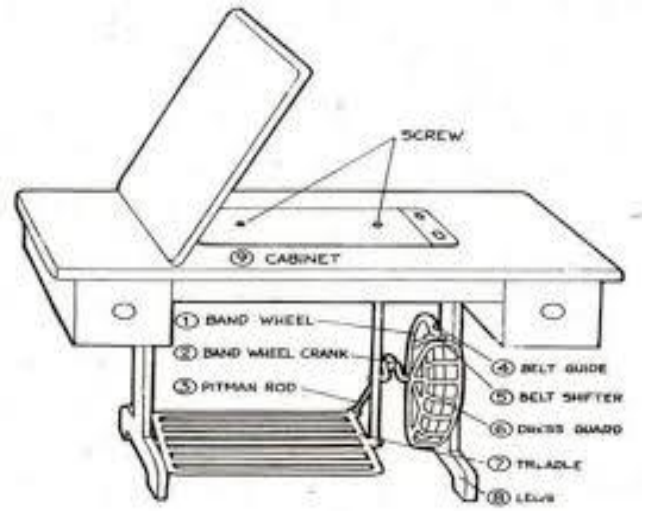
d. Motor: It generates the required power according to the m/c speed (stitching speed).

e. Pulley/ Transmission belt: Transfers the power to balance wheel via V- belt.

f. Pitman rod: Connects the treadle with the clutch.

g. Knee press: It releases tension disc and raises pressure roller.

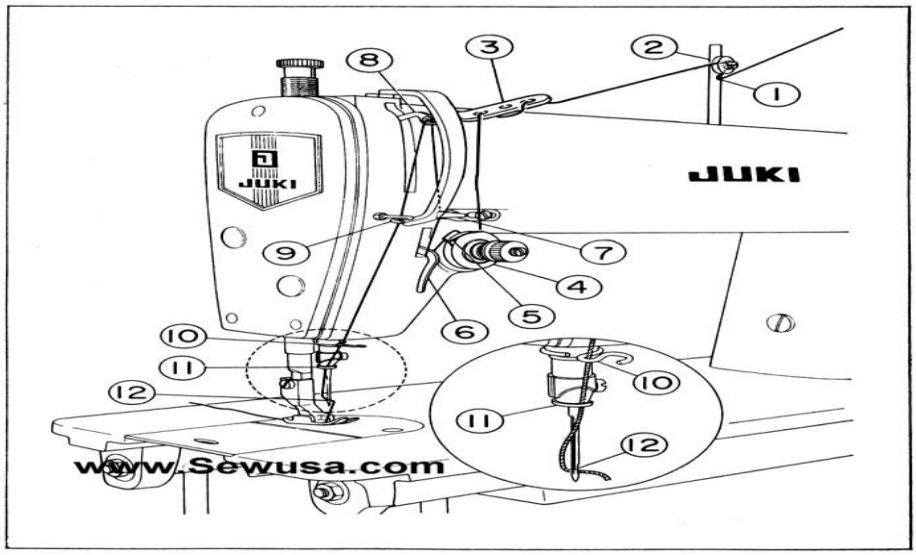
h. Drip tray: It collects excess oil and dust of materials (leather, thread, etc.).



B. Part above the table:

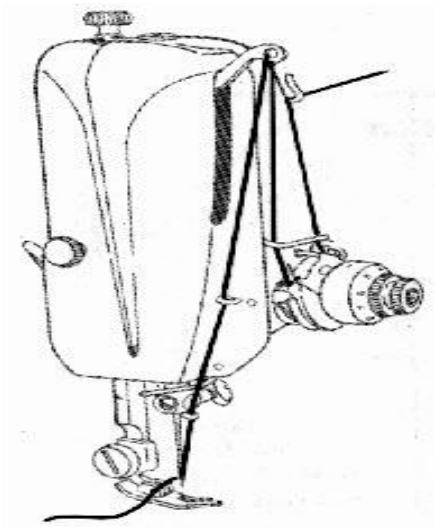
1. Balance wheel/ Hand wheel: It transmits power through V- belt to the mechanism. It controls take-up lever. Always turn it towards you.
2. Bobbin Winder: For winding the bobbin.
3. Bobbin winding assembly: Helps in re- winding the bobbin.
4. Check spring: Tightens the lock during stitch formation.
5. Faceplate: Covers all side shafts like needle bar, pressure roller bar for safety & maintenance purpose.
6. Feed Dog -- Feed dogs feed the material while the machine sews. Never push or pull your material. The material will be fed through for you. All you have to do is gently guide your fabric.
7. Light: Pours light on sewing area.
8. M/c arm: Provides space for the material during stitching.
9. M/c head: It consists/bear entire top mechanism.
10. Motor Belt: It activates machine.
11. Needle bar: It gives space to insert the needle and has space for fixing the needle screw. Sometimes it also accommodates a needle thread guide near its tip. It holds the needle and drives needle into the material for stitch formation.

12. Needle/ Throat plate: It provides space for bottom feed, provides base to the material being stitched and gives passage to the needle for it's up and down movement.
13. Needle hole: It allows needle to go inside to make stitch.
14. Needle plate screws: To hold the needle plate in its required position.
15. Needle thread guide: It is a guide at the tip of the needle bar.
16. Pressure roller: It helps to hold & feed the material.
17. Pressure roller lifter: It is used to lift the pressure roller.
18. Pressure Regulator: It controls pressure of presser foot on material
19. Shuttle/ Hook: It picks up the top thread from the needle with the help of the hook point and enlarges it.
20. Stitch Length regulator: It helps to adjust stitch length accordingly.
21. Table Top: It provides place for the m/c head, bobbin winder, thread stand, inching scale, rubber pads and m/c rest. It provides space for the material.
22. Take Up lever: It controls the thread for stitch formation, i.e., the enlarged slack of thread by the hook point is taken back by the take up lever.
23. Tension Disc: It is used to adjust the top tension for a good stitch formation according to the material.
24. Thread Cutter: Slot on back of bar cuts thread easily and safely.
25. Thread guide: It gives direction to the thread.
26. Thread stand: It keeps thread cones for top threading and bobbin winding.
27. Throat Plate: also called needle plate, covers the area that holds the bobbin. It has an opening for the needle to pass through, as well as lines that serve as sewing guides. The needle may be a single hole, used for straight stitching, or an oblong hole, which allows the needle to make stitches that have width (such as zig-zag stitches).



1.5. THREADING THE MACHINE

Top threading: Machines vary as to how exactly they are threaded, but all have certain common features. The thread runs from the spool holder, through a tension device and down through the needle. The tension device controls the tension on the thread. It consists of a groove that the thread slides through. The mechanism for setting the tension may be a dial or buttons (computerized machines).



Figs 2 threading: Machines

There are usually small grooves in the arm that holds the needle, for the thread to pass through.

This holds the thread close to the needle arm. The thread then runs down to and through the eye of the needle.

When threading, make sure that the presser foot is raised and the needle is in the highest position. If the presser foot is lowered the tension discs will be closed. Make sure the thread is placed between the tension discs. Occasionally when we are in a hurry or not really paying attention we inadvertently place the thread next to the tension discs instead of making sure it is firmly seating between them.

Self-Check 2 Written Test

Name: _____ **Date:** _____

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

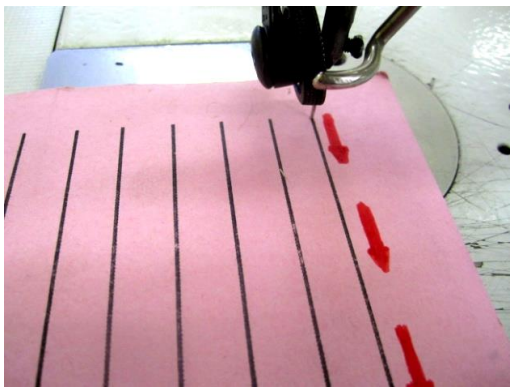
1. **Answer the following questions:-** **(Total marks:-5)**
   1. What is the use of take up lever?
   2. What is the use of check spring?
   3. What is the function of knee press?
   4. What is the function of pits men rod?
   5. What is the function of treadle?

Note: **Satisfactory rating - 5points** **Unsatisfactory - 5below points**

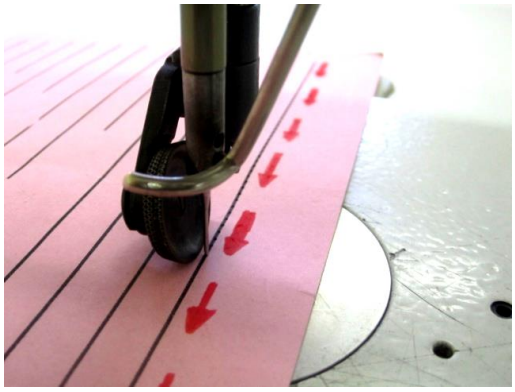
Information sheet -3 Performing basic stitching operation.

3.1. paper stitching exercise
3.2. Stitching Paper Exercises 1 (SPE 1)

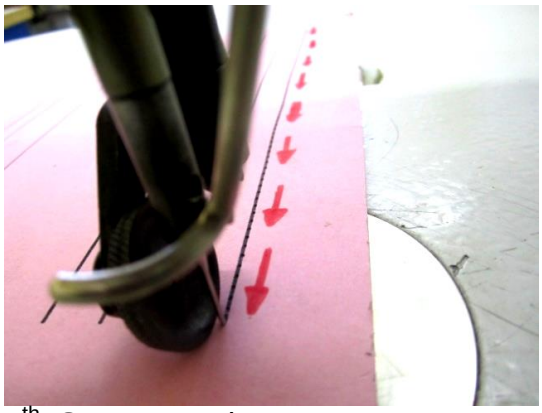
1st. Start stitch at the top of the card. (Right hand side)



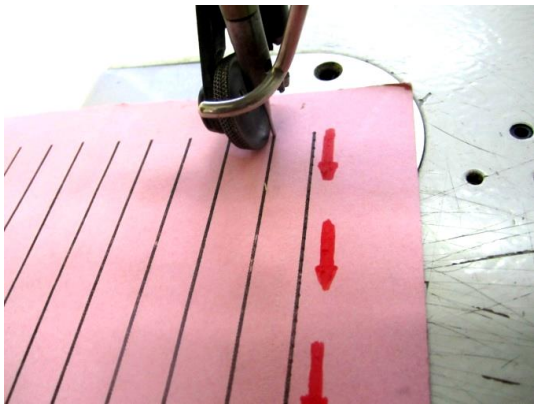
2nd .Do not stop in the middle of the exercise



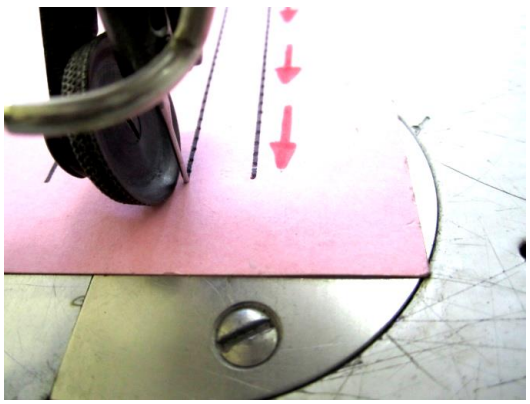
3rd. Continuous up to the end of the line



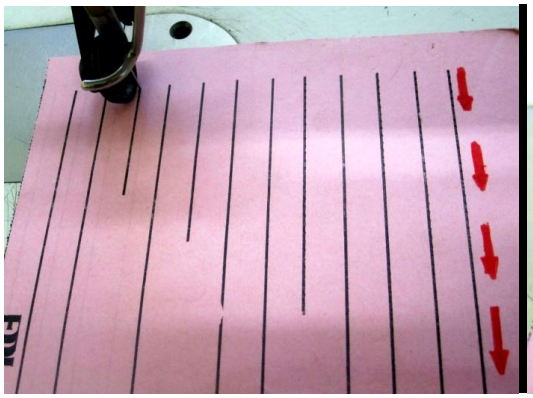
4th. Start second raw



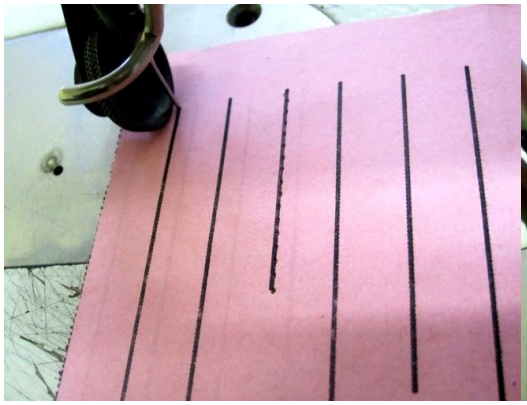
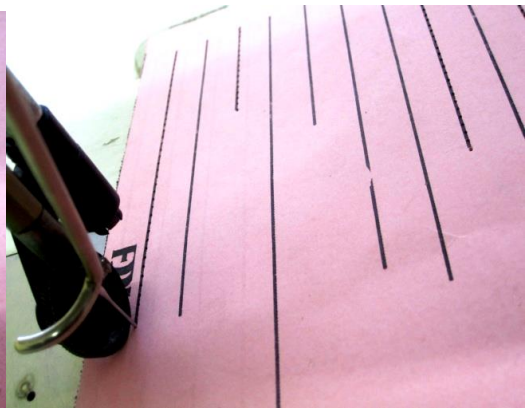
5th. Continuous up to the end of the line



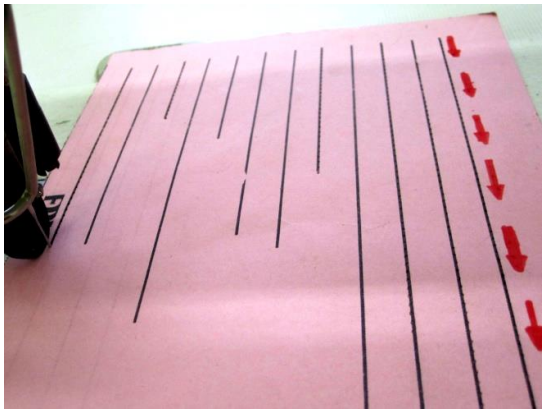
6th. For the small lines stop exactly on the black line




7th. Do continuously until you finished the exercise

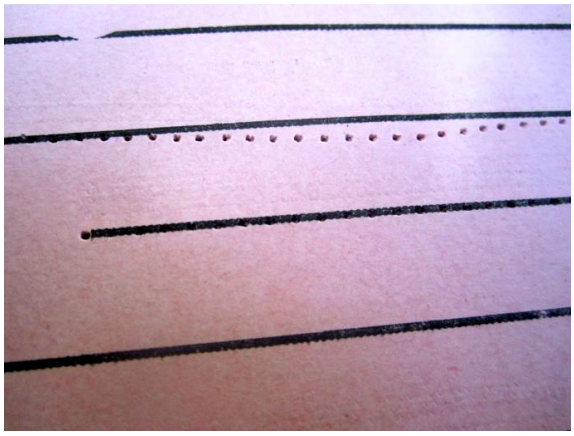



8th. Show your work to your instructor

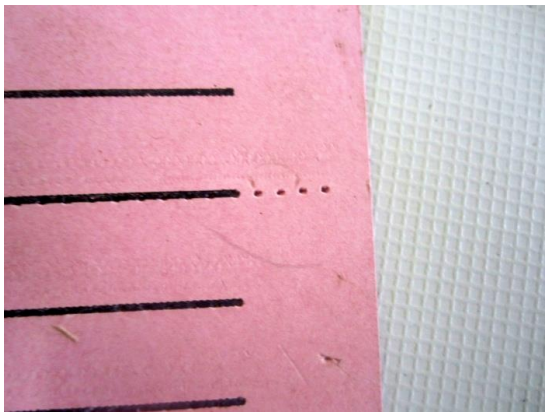


Faults:

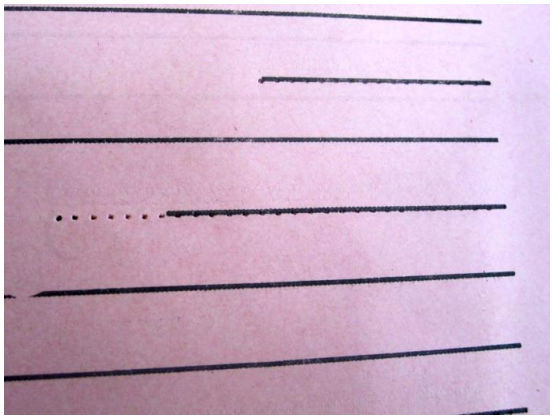
9th. Stitching should be on the line



10th. Stitching should always start from black line



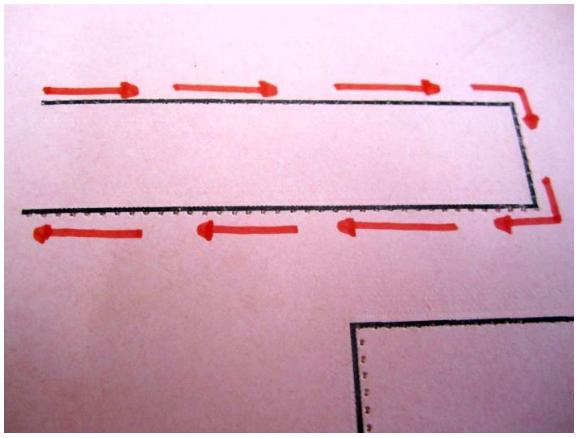
11th. For small lines, stitching should stop exactly on the black line



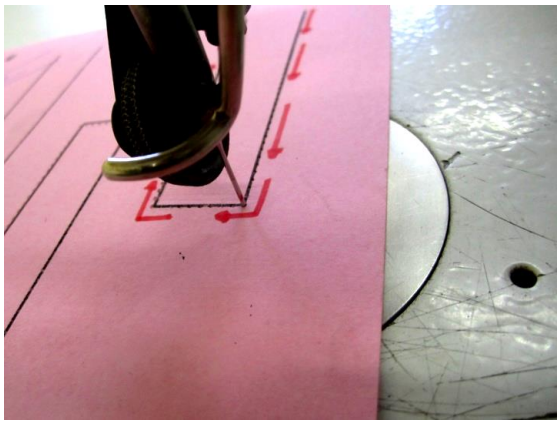
3.3. Stitching Paper Exercises 2(SPE 2)

Start at the top of the page.

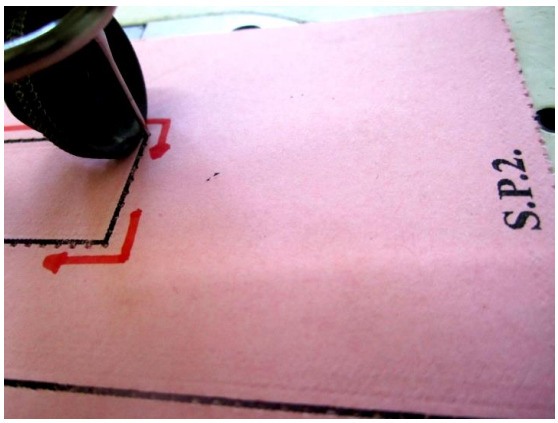
1st. Follow stitching in the direction of the arrows.



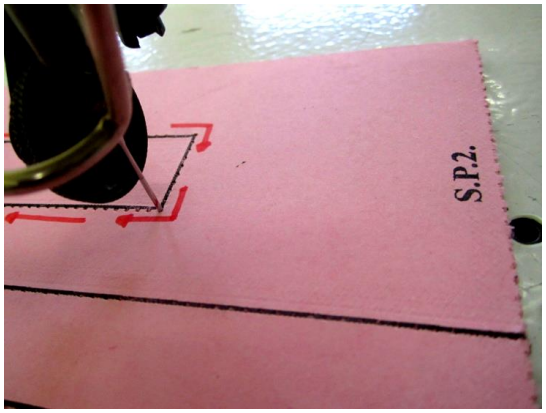
2nd. Stop at the 90* angle corner, on the corner needle point should be inside the material and then turn the material.



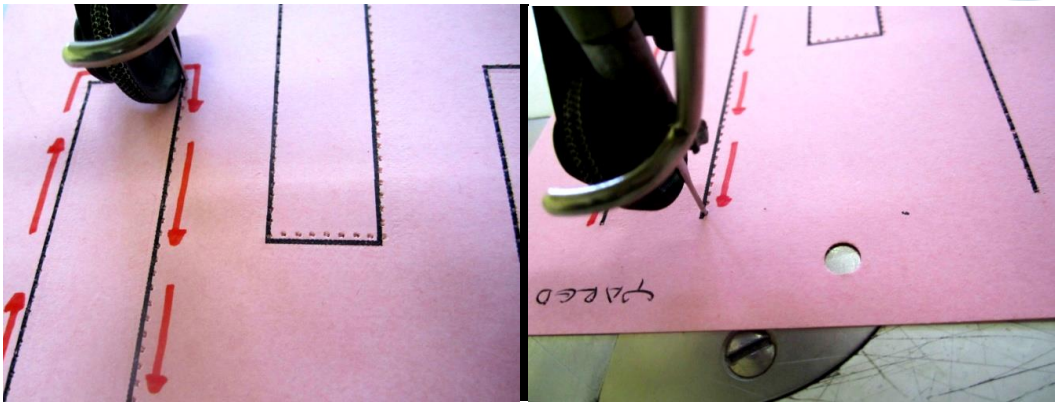
3rd. Start stitching continuous until the next corner point



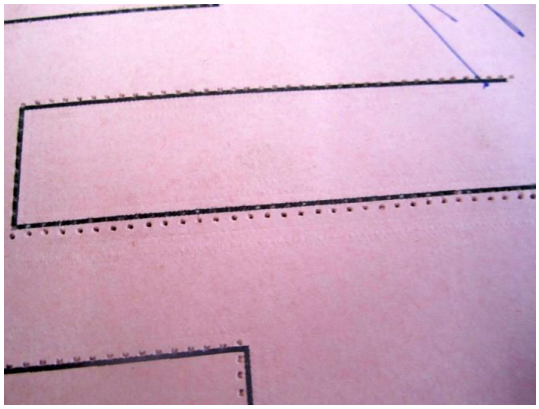
4th. Again stop at the 90* angle corner, on the corner needle point should be inside the material and then turn the material.



5th. Start stitching up to the end of the black line.

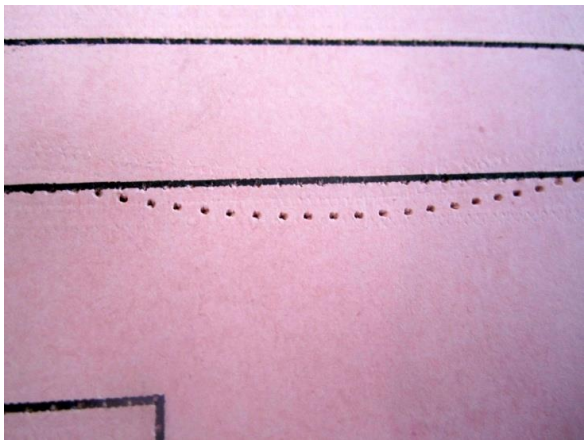


6th. Needle should stop exactly on the corners. If it crosses one stitch point than stitching should be parallel to the black line. We should not return back.

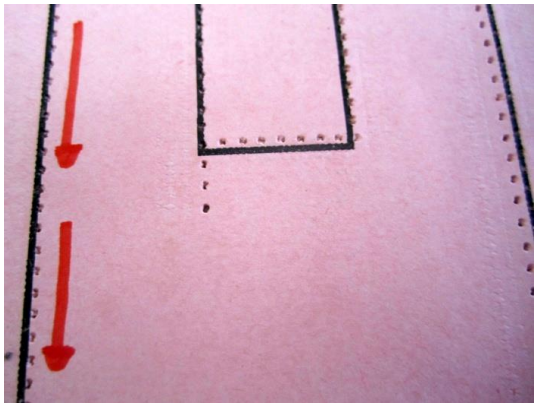


Faults:

7th. Stitching should be exactly on the black lines



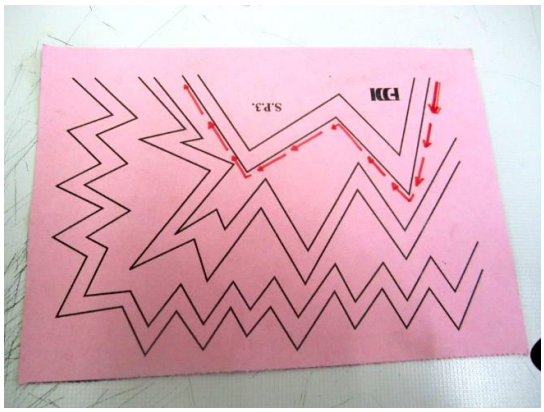
8th. Needle should stop on the corners



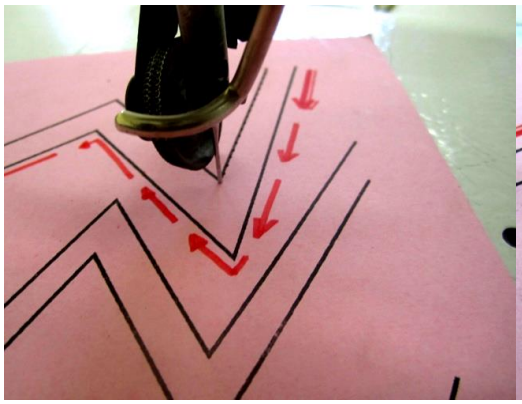
3.4. Stitching Paper Exercises 3(SPE 3)

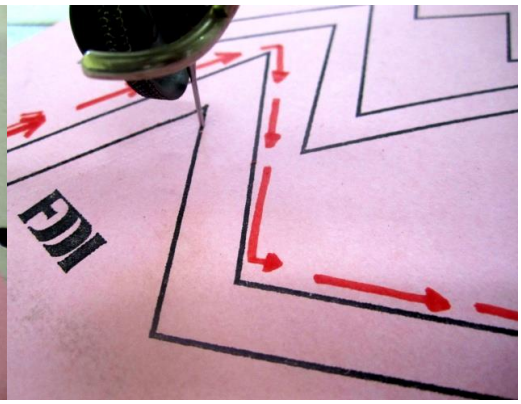
Start at the top of the page (right hand side).

1st.Follow stitching in the direction of the arrows.

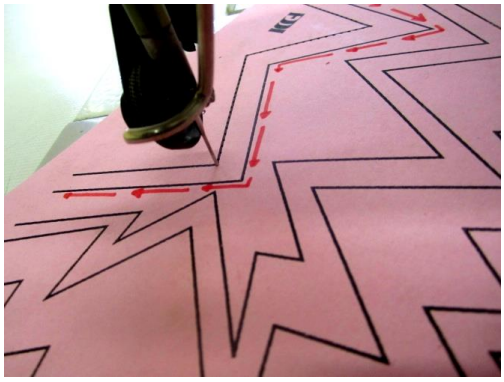


2nd Stop at the corner, on the corner needle point should be inside the material and then turn the material.

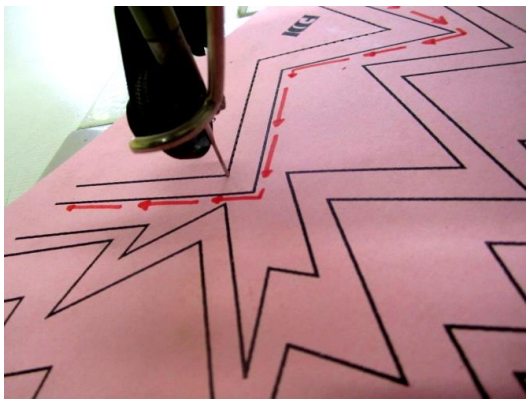




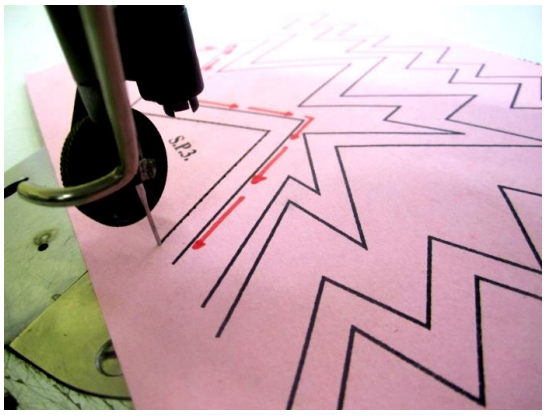
3rd. Continuous until the next corner point



4th. Again stop at the corner, on the corner needle point should be inside the material and then turn the material.

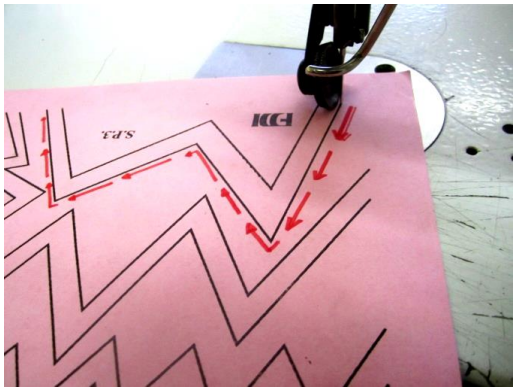


5th. Continuous until the end of the line

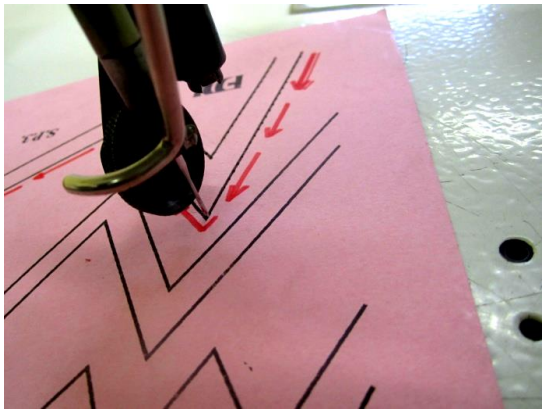


6th. Start the second raw at the top of the page.

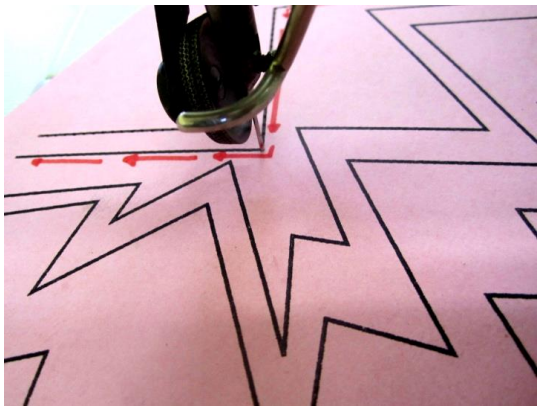
Follow stitching in the direction of the arrows.



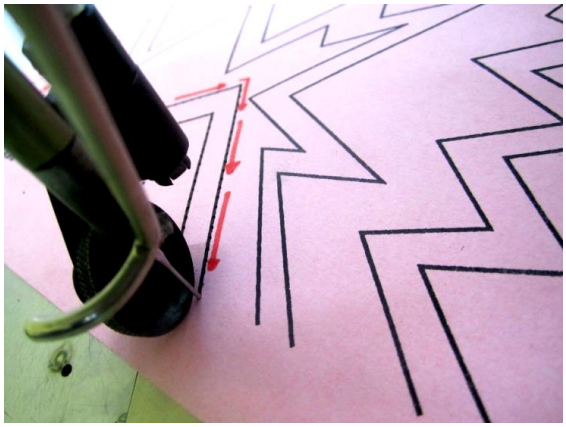
7th. Stop at the corner, on the corner needle point should be inside the material and then turn the material.



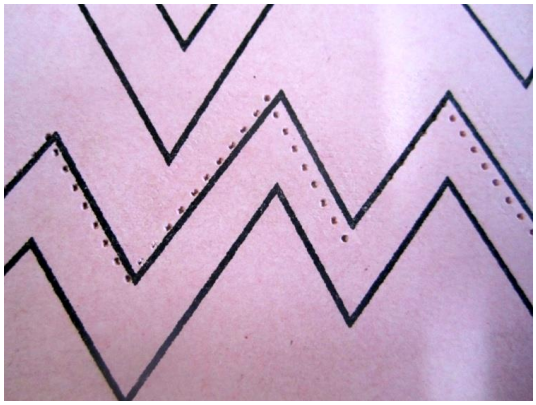
8th. Continuous until the next corner point, on the corner needle point should be inside the material and then turn the material.



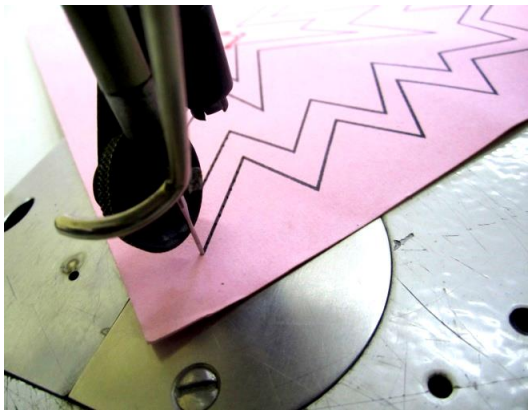
9th. Continuous until the end of the line



10th. If on the corner needle point crosses one stitch than the line should be parallel to the black line. We should not go back.

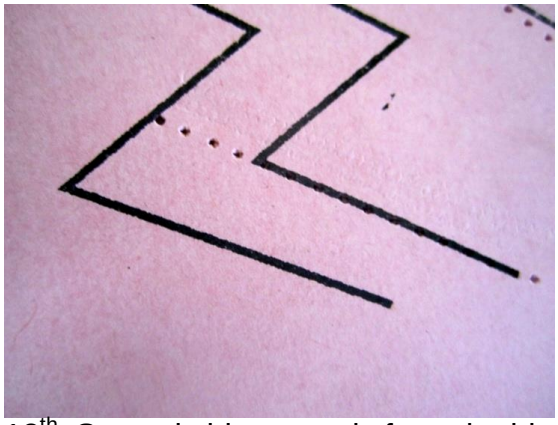


11th. Continuously do like the above rules and finish the exercise up to the end line.

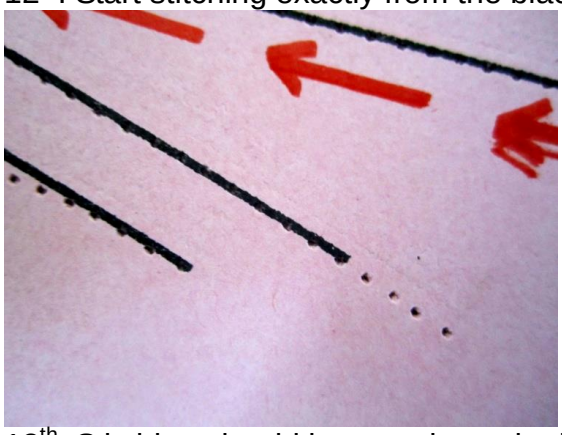


Faults

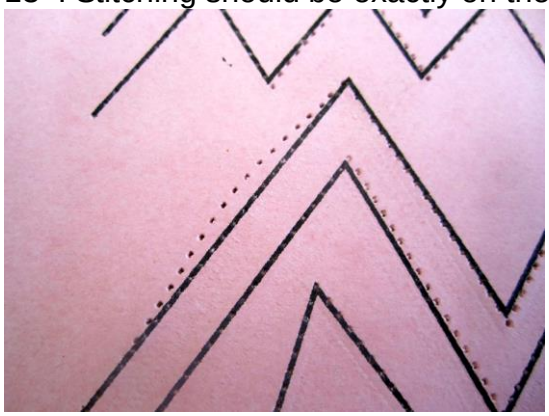
Stitching should not cross the corners.



12th. Start stitching exactly from the black lines.



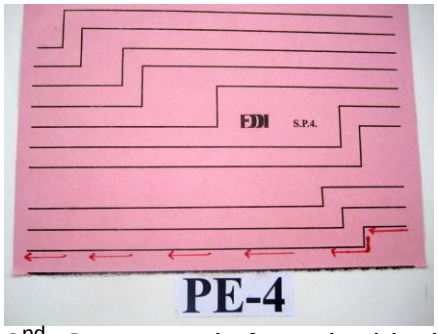
13th. Stitching should be exactly on the black line.



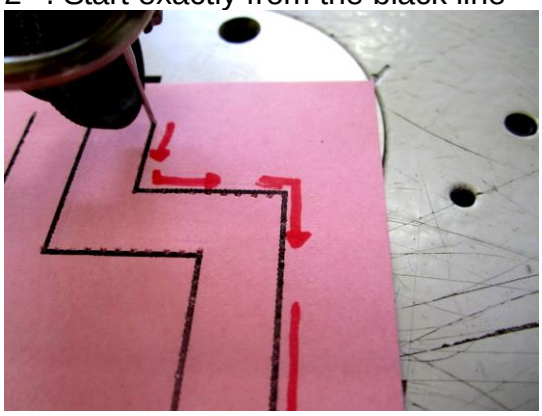
3.5. Stitching paper exercise 4 (SPE 4)

Start at the top of the page (right hand side).

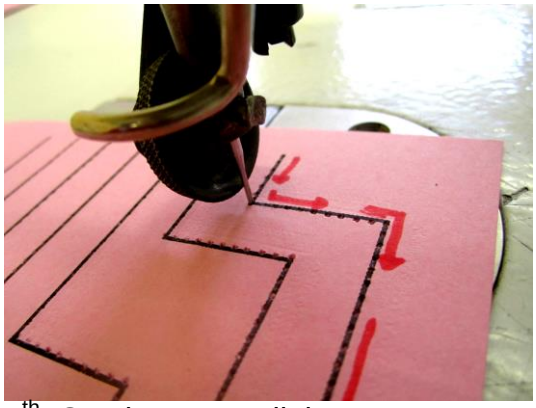
1st. Follow stitching in the direction of the arrows.



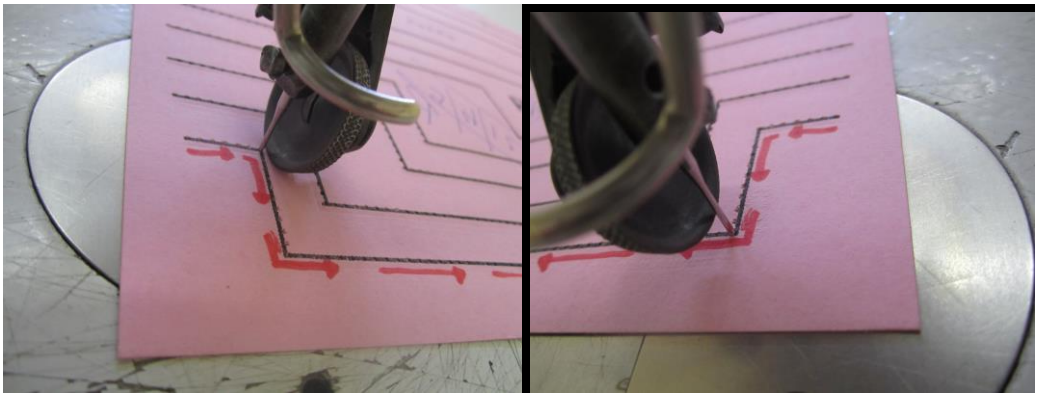
2nd. Start exactly from the black line



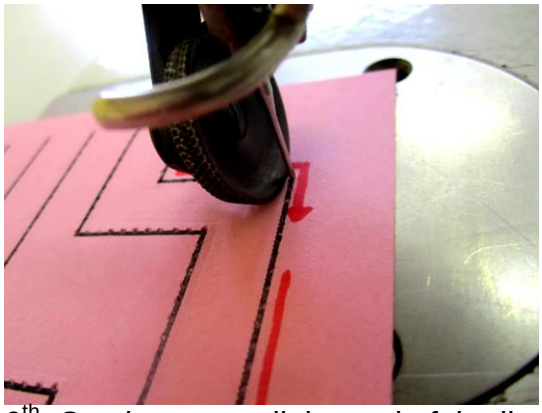
3rd. Stop at the corner at 90* angle, on the corner needle point should be inside the material and then turn the material.



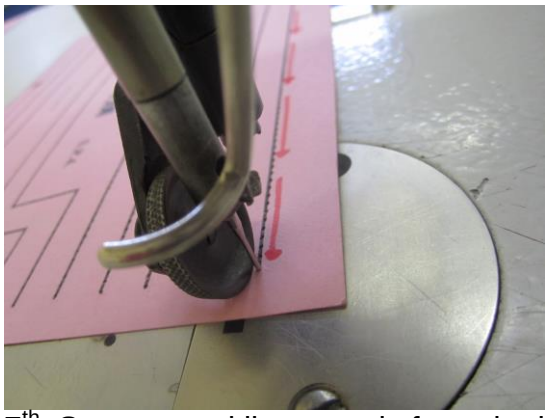
4th. Continuous until the next corner at 90*.



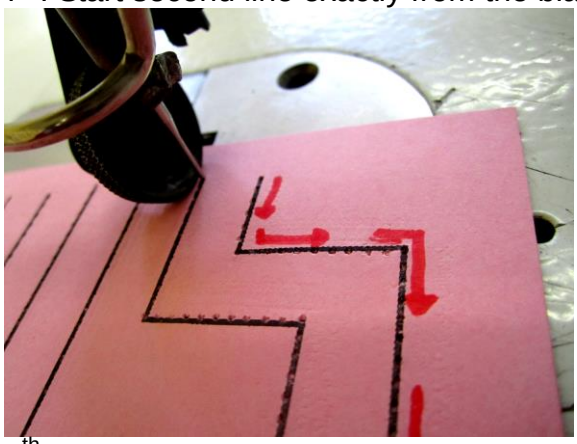
5th. Again stop at the corner, on the corner needle point should be inside the material and then turn the material.



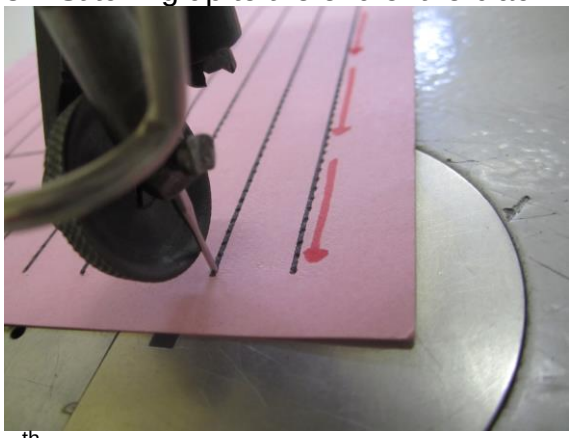
6th. Continuous until the end of the line.



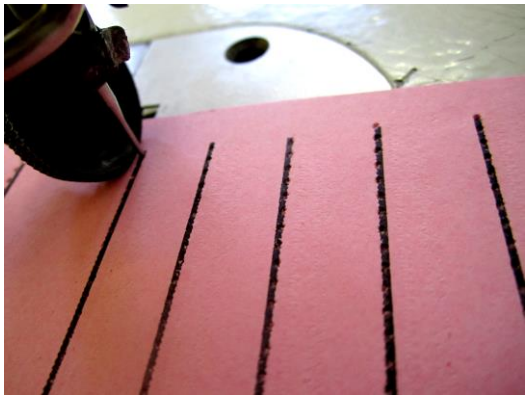
7th. Start second line exactly from the black line like the first line.



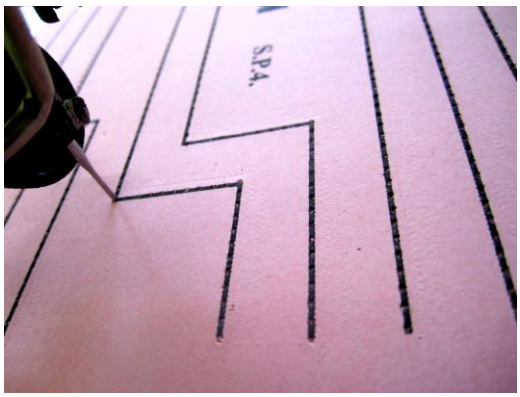
8th. Stitching up to the end of the black line.



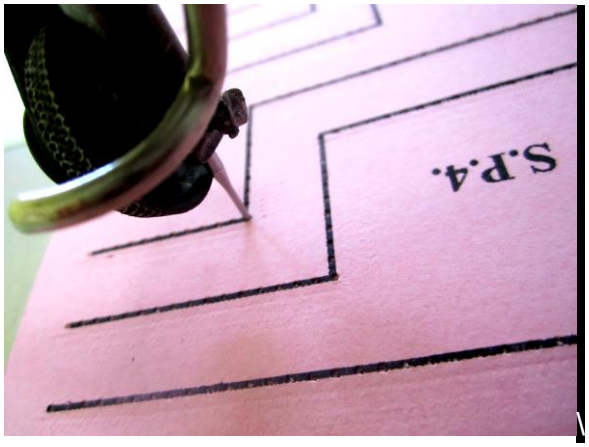
9th. Like this do the next lines



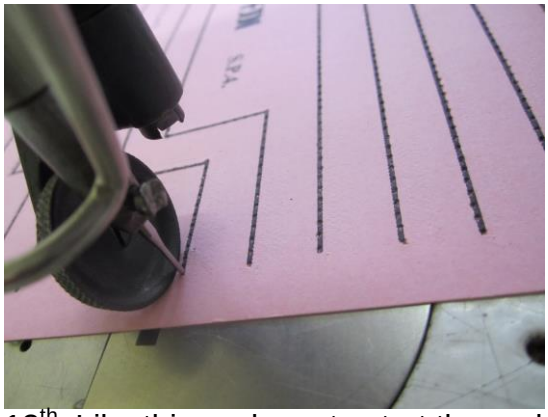
10th. Stop at the corner at 90* angle, on the corner needle point should be inside the material and then turn the material.



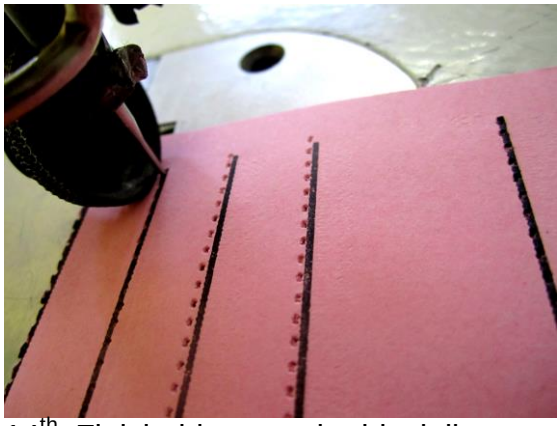
11th. Continuous until the next corner at 90*.



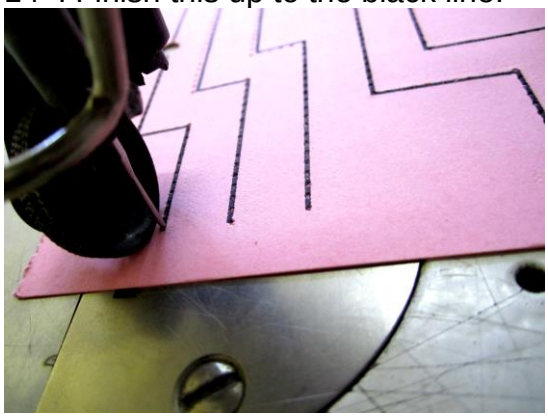
12th. Again start stitching up to the end of the line.



13th. Like this we have to start the end line.

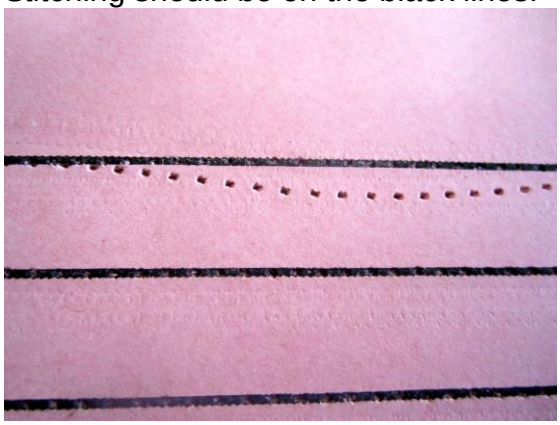


14th. Finish this up to the black line.

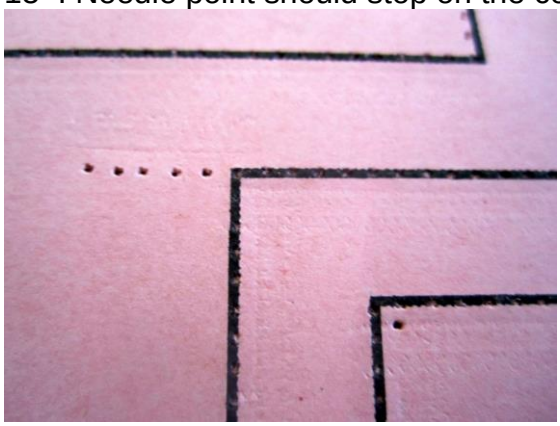


Faults:

Stitching should be on the black lines.



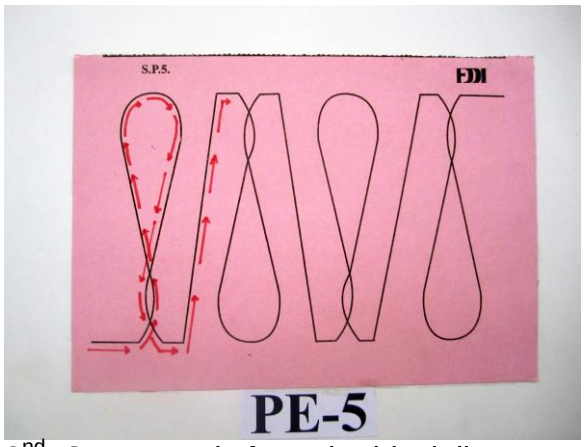
15th. Needle point should stop on the corners.



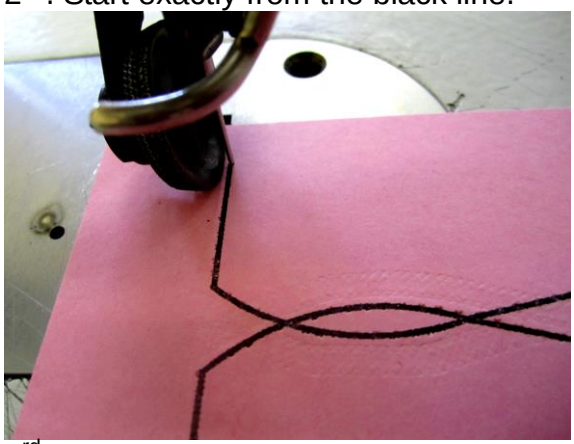
3.6. Stitching Paper Exercises 5(SPE 5)

Start at the top of the page (right hand side).

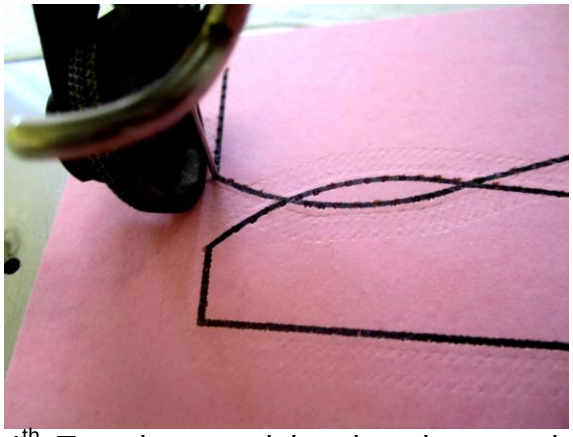
1st. Follow stitching in the direction of the arrows.



2nd. Start exactly from the black line.

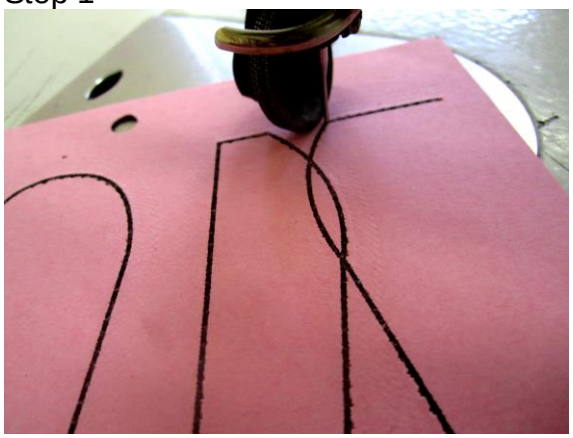


3rd. Stop at the corner, at this point needle point should be inside the material.



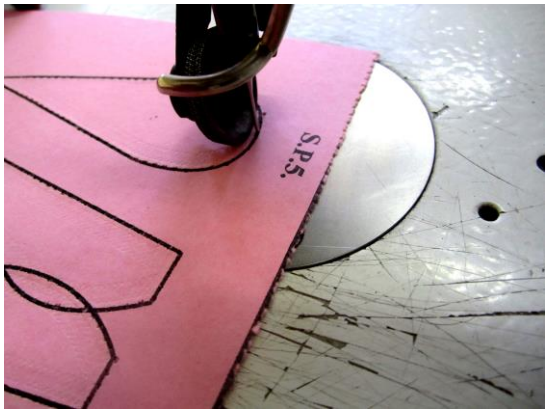
4th. Turn the material and again start stitching without stop.

Step 1



Step 2

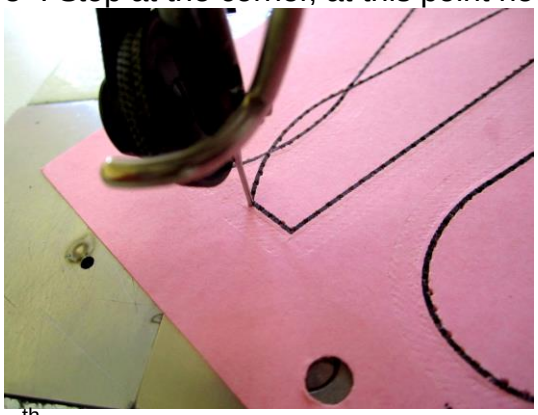
Step 3



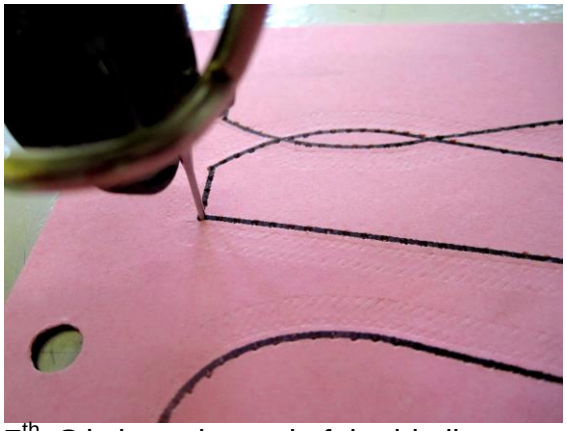
Step 4

Step 5

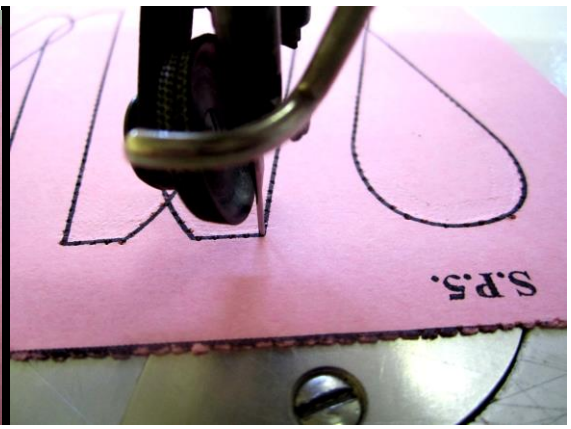
5th. Stop at the corner, at this point needle should be inside the material.



6th. Again start stitching up to the corner at 90* angle.



7th. Stitch up the end of the big line.



8th. Follow like this and complete the exercise.

3.3.2.stitching Synthetic Exercises 1(SPE 1

1. Start at the top of the exercise (right hand side).

Stitching Synthetic Exercises 2(SPE 2)

2.Start at the top of the exercise (right hand side).

Stitching Synthetic Exercises 3(SPE 3)

3.Start at the top of the exercise (right hand side).

Stitching Synthetic Exercises 4(SPE 4)

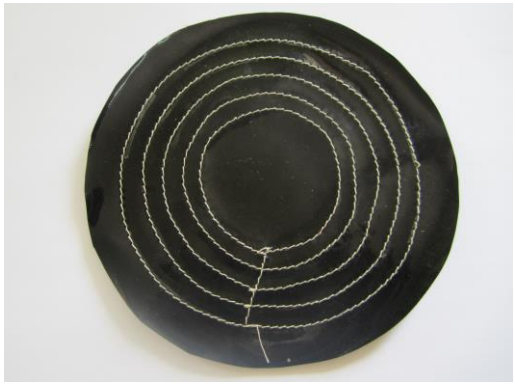
4.Start at the top of the exercise (right hand side).

Stitching Synthetic Exercises 5(SPE 5)

5.Start at the bottom of the exercise (right hand side).

Stitching Synthetic Exercises 6(SPE 6)

6. Start at the top of the exercise.



Stitching Synthetic Exercises 7(SPE 7)

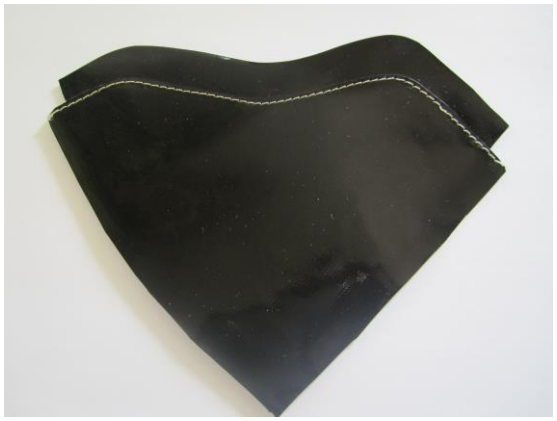
7.Start at the bottom of the exercise (right hand side).

Stitching Synthetic Exercises 8(SPE 8)

8. Start at the top of the exercise.

Stitching Synthetic Exercises 9(SPE 9)

9.Start at the top of the exercise (right hand side).



Stitching Synthetic Exercises 10(SPE 10)

10. Start at the top of the exercise (right hand side).

Stitching Synthetic Exercises 11(SPE 11)

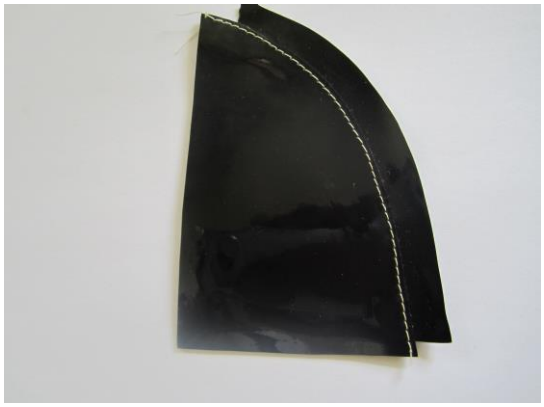
11. Start at the top of the exercise (right hand side).

Stitching Synthetic Exercises 12(SPE 12)

12. Start at the top of the exercise (right hand side).

Stitching Synthetic Exercises 13(SPE 13)

13. Start at the top of the exercise (right hand side).



Stitching Synthetic Exercises 14(SPE 14)

14. Start at the top of the exercise (right hand side).

Stitching Synthetic Exercises 15(SPE 15)

15. Start at the bottom of the exercise (right hand side).

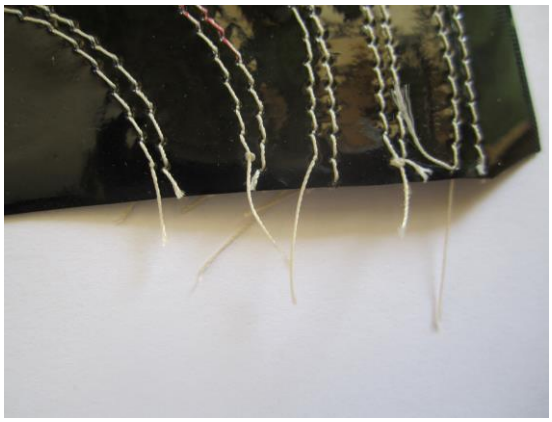
Stitching Synthetic Exercises 16(SPE 16)

16. Start at the bottom of the exercise (right hand side).

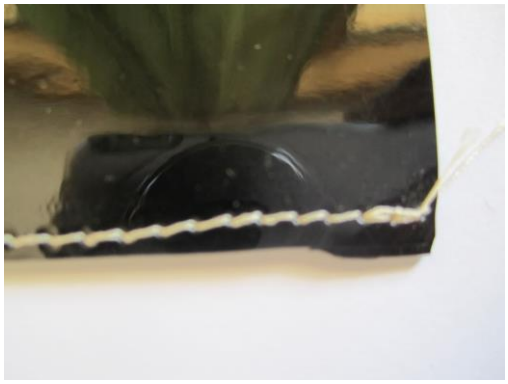
FAULTS:

1Gap between the parallel lines should 1.5-2.0 mm.

1.Loose threads should be cut at the end.



2. On the edge stitching should be 1.5-2.0 mm.



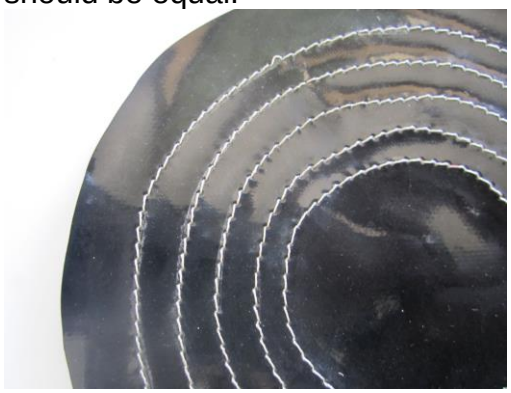
3. On the circle stitching should be on the marking (round stitching).

Parallel stitching on the round should be exactly 1.5-2.0mm.

4. On the curve parallel stitching should be 1.5-2.0mm from the first line.

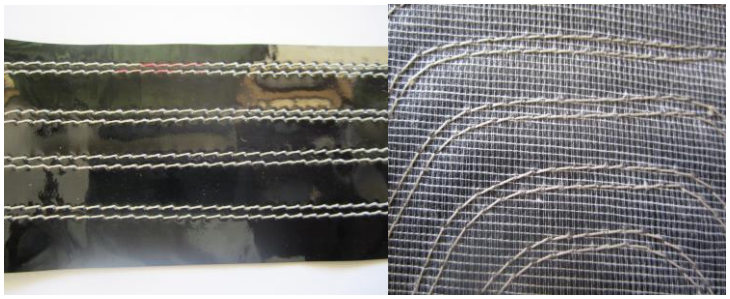
5. On 90* angle, parallel stitching should be 1.5-2.0mm from the first line.

6. Round stitching should be on the marking and gap between the round stitching should be equal.



7. Stitching should be on the marking.

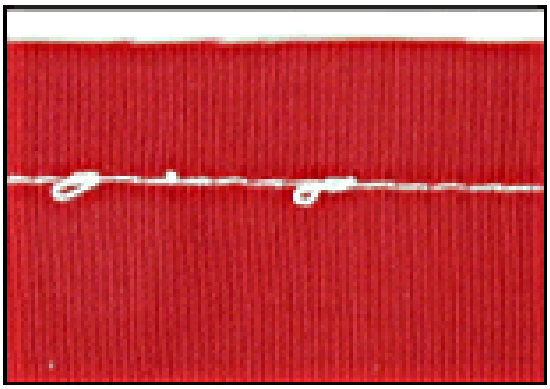
8. There should not be top tension and bottom tension on the components.
Top tension



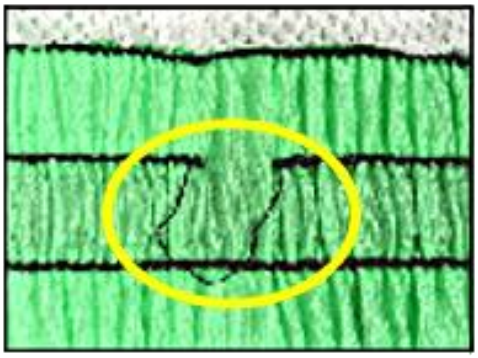
9. Bottom tension

10. The lock should not be formed at the top or bottom of the material surface.

Poor Stitch Balance - Too Loose



11. Skip stitching



LAP Test Practical Demonstration

Information sheet -4 paper stitching exercise

Name: _____ **Date:** _____

Time started: _____ **Time finished:** _____

Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 1.30 hours.

Task 1: make sure the sewing machine have the upper thread and lower (bobbin) thread

Task 2: prepare scrap leather

Task 3: start stitching and see what both thread loop formation look like

Task 4: start adjusting tension either the bobbin thread loops or spool thread loops where not proper

Task 5: at the last check both loops threads locked midway between the two layers

of cloth

Instructions:

1.Paper Exercises

1,Paper Exercises 1. 1^{st}. ---11^{th}.

2 Paper Exercises2. 1^{st}. ---8^{th}.

3, Paper Exercises3 1^{st} . --14^{th}.

2. Synthetic Exercises stitch

1. You are required to stitch SE 1-6 exercises without thread with standard
2. You are required to stitch SPE 1-7exercises without thread with standard time.

Request your teacher for evaluation and feedback of your work

Now. to guide you in the adjusting, take a look at the stitching the machine makes. Set stitch-length control for a medium length of stitch. Fold a 6- or 8-inch square of medium weight cloth and stitch diagonally across it at an angle of about 45 degrees.

Now, inspect the stitching. A perfect stitch will have threads locked midway between the two layers of cloth, with no loops on the top or bottom of the seam and no puckers in the cloth.

Note: **Satisfactory rating - 100points Unsatisfactory - 100below points**

Operation sheet 2

Operation title: - performing basic stitching machine operation.

Purpose	To acquire the trainees with sew operation and maintenance practice
Equipment ,tools and materials	Supplies and equipment needed or useful for machine sewing include these: • Paper exercise • Scissors • Machine needle • Cutter • Synthetic • Thread • Adhesive
Conditions or situations for	• All tools, equipment's and materials should be available on time when required.

the operations	• Appropriate table, working area/ workshop to sewing paper exersise
Procedures	6. Clean sewing machine 7. Do Pre operation 8. Thread gaid 9. Check needle position 10. Bobbin wending 11. Insert bobbin with bobbin case 12. Cutting paper by d\t shape 13. Sew paper on straight line
Precautions	• Care should be taken while connecting with electric power, sewing , machine • Preparing materials, tools and equipment are according to inseminator command.
Quality criteria	• Did personal protective equipment worn while performing basic stitching sew machine • Did trainees the component of the performing basic stitching machine proper without leakage • The machine functional for sew separation

Information sheet -4 Positioning of material accurately consistent with stitch requirement

4.1 Synthetic

The term is used to describe a whole range of manmade leather also known as coated fabrics. The base for these fabrics is either knitted or woven cotton in the form of sheets, drills or satin. To these a coating of synthetic resin is applied. Colors, types and finishes & embossing that can be given to coated fabrics are unlimited and are difficult to differentiate from leather.

In coated fabrics the coating provides the attractive finish and good wearing properties, whereas, the fabric provides most of the strength.

The two main types of coated fabrics are PVC coated & PU coated fabrics. PUCF's have a more attractive appearance and handle than PVC coated fabrics and are

permeable. They are however, generally weaker, and the PU coating is less robust than PVC.

Stitching of Synthetic round Position

4.2.Leather

Leather is the most suitable material to be used as **upper, lining** and **socks** making because of its physical properties, elasticity, flexibility, ease of working, availability in varieties of colour and finish, thermal conductivity etc.

A. Goat and Kid leather:

They are made from skins of goats. It is soft and suited to woman's fashion shoes.

'Kid'' is the term applied to full chrome leather made from the kid of goat skin for use as footwear uppers (men's and ladies upper). Even though goat skin is relatively thin they are strong and have a very hard-wearing grain. Glace kid is used for making upper of high quality dress shoes. This leather has a highly polished but natural grain appearance and with regular cleaning and polishing, retains its high polish and well gloomed look. It is also used for glove making. Old goat skin is used for making suede and printed leather as they have coarse grain.

Lining is the material which constitute the inside of the footwear i.e. the materials against the foot. Lining can be prepared from the leather of following animals:

- Cow
- Sheep
- Goat
- Cow Lining

Cow lining is thinner leather made of cow. It is preferably used in the natural form as

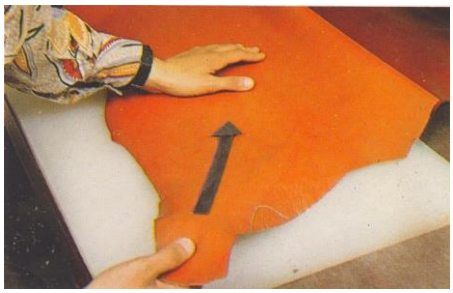
Drum Dyed (DD) lining in the high value shoes and is also available as finished leather. Cow lining is stronger leather and is used in the thickness range of 0.7-0.9 mm.

B. Sheep Lining

Sheep Lining is known for its softer, supple and warm feel. This type of lining leather is generally used in the thickness range of 0.6-0.8 mm.

C. Goat Lining

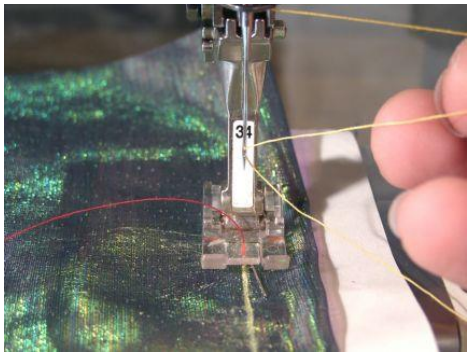
Goat Lining stronger compared to sheep lining leather.. The grain of goat leather is compact and hence the abrasive strength of goat lining leather is better. The preferable thickness range of goat lining is 0.6-0.8 mm for stitching



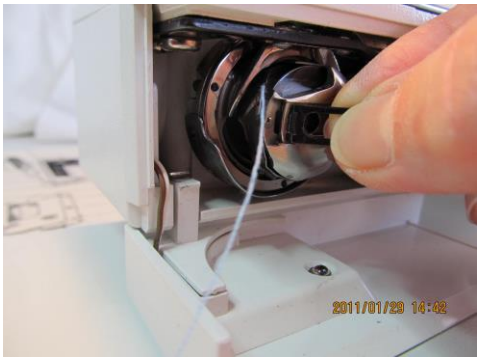
Coated fabrics like textiles have to be further processed with a backing to give the weight & thickness required.

Performing basic stitch threading gaid is important

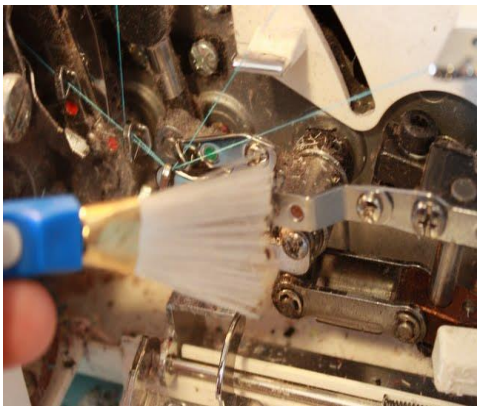
1. Move the power foot control away to prevent accidental pressing it while changing the needle.
2. Turn the hand wheel that is located on the upper right side of the sewing machine. Watch the needle while you are turning the wheel and stop when the needle is as high as it can go. If the thread is still inserted into the needle ,pull it out



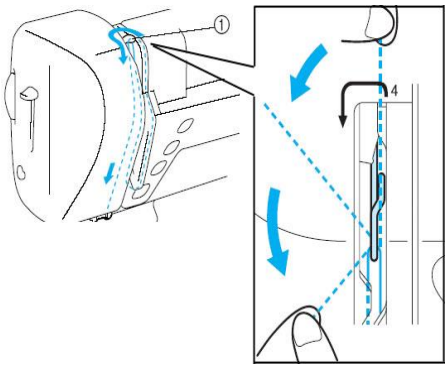
3. Remove bobbin case from hook assembly



4. Using cleaning brush, clean any thread debris or lint from hook area



5. 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



Tension refers to the force that is applied by the machine on your thread. You can also effect tension by the amount of pull or push you apply to the material as you feed it through under the needle - you should not apply force. Instead, just use your hands to guide the material through. Let the feed dogs actually feed the material through.
There are two areas in which you can adjust tension.

The upper thread (needle thread - coming from the spool) and the bobbin thread each have tension.

Too little tension can cause weak seams, which can be pulled apart easily and final seam will loose. Adjust to a higher tension.

Too much tension causes a seam puckering due to high stress and pressure on thread. Rectify it by lowering the related tension assemblies.
When both threads have an even amount of tension, a smooth, "balanced" stitch is produced. The needle and bobbin threads are locked between the two layers of material with no loops on top or bottom and no puckers.

- The lockstitch should be formed at the center of the material thickness.

Proper Stitch Balance

- The lock should not be formed at the top or bottom of the material surface.

Poor Stitch Balance - Too Loose

Needle Thread Tension: This is the most likely place to find a problem. Generally the tension ranges from low to high in number, with high being the tightest.

The numbers on the dial represent the degree of tension on the needle thread. The higher the number, the tighter the thread.

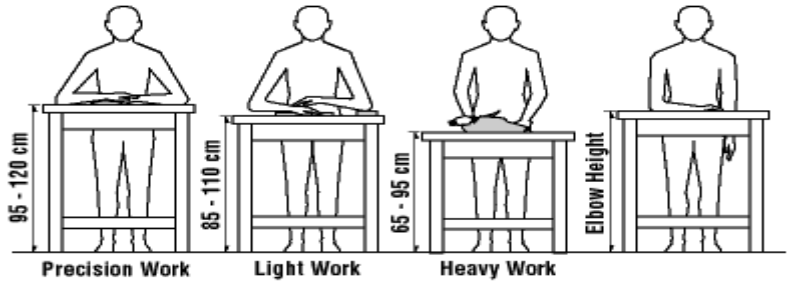
Correct needle-thread tension is important because too tight a thread will cause material

to pucker. Too loose a thread, on the other hand, will produce slack stitches and weak seams.

Frist we have be Workplace design should fit the variety of workers' shapes and sizes and provide support for the completion of different tasks.

Different tasks require different work surface heights:

- Precision work, such as writing or electronic assembly - 5 cm above elbow height; elbow support is needed.
- Light work, such as assembly line or mechanical jobs - about 5-10 cm below elbow height.
- Heavy work, demanding downward forces - from 20-40 cm below elbow height.



\Self-Check 4 Written Test

Name: _____ **Date:** _____

2. Fill in the black space (Total marks:4)

1----------at the center of the material thickness(2point)

2.The lock should not be formed at----------(2point)

Note: **Satisfactory rating - 4points** **Unsatisfactory - 4below points**

Information sheet -5 Performing sewing different shapes and components

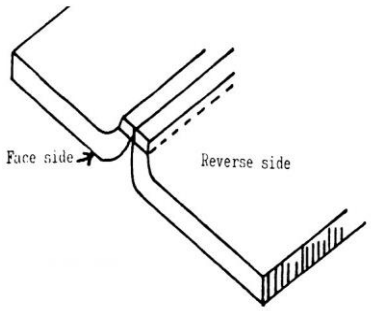
5.1. Performing sewing different shapes and components

The components are placed face to face together (grain side) and stitched usually by keeping the distance of 1.5 millimeter from the edge. This distance is mostly maintained for leather material but can alter from 3 to 6 millimeter in case of synthetic material. The seam is then opened and rubbed down in case of leather and open and pressed in case of synthetic material. This is usually done on a flat bed. Use of an edge guide is effective in both an even edge stitching and productivity. Closed seams have to undergo

tension both during wear and lasting. Hence it is very important to use the right thread and stitch density. The tension must also be correct to avoid “grinning” or

“puckering”. For extra strength, the seam is reinforced at the top by a stay or dog-ear.

Steps of the following sewing different shapes and components

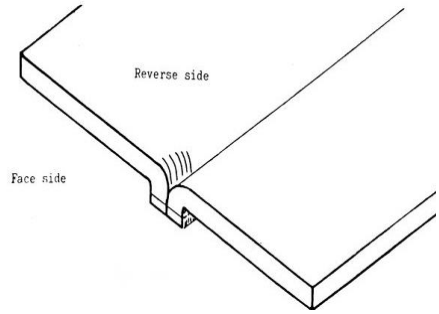


1.Plain Closed Seam

- Always use P point needle for back seam or close seam. Check the needle on regular basis for blunt tip or any kind of burr.
- Do not use a thread heavier than 40.
- The texture/thickness of both the components must be matched otherwise the seam will roll.
- Skiving done must be uniform.
- Edge distance must be uniform.
- Seam must be level at top and lasting margin. Always start stitching from top line.
- Reinforced the seam properly with lock.

Reversed Closed Seam/Open Seam

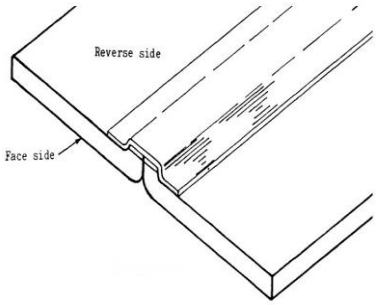
It is similar to a closed seam except that the pieces are placed flesh-to-flesh and stitched. The edges are left unskived to give a bold look with the upward standard seam. The edges are inked. A reinforcement tape or backer must be used to reinforce the seam. It is also advised to make French/silked seam to give extra strength to the seam.



2, Reversed Closed Seam/Open Seam

Brooklyn Seam

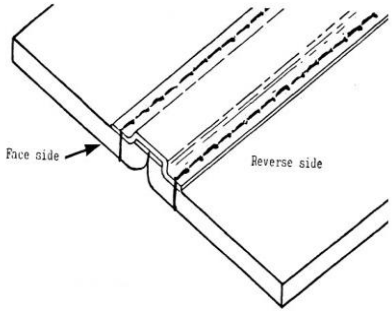
When plain closed seam is rubbed down and reinforced with reinforcement tape, it is called a Brooklyn seam.

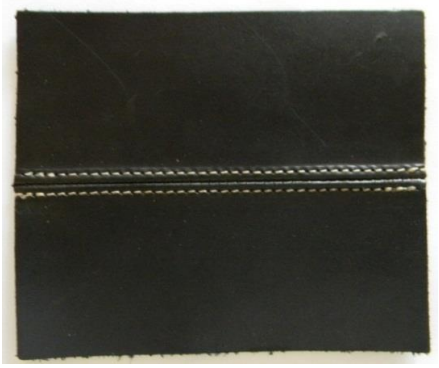


3.Brooklyn Seam

<u>French/Silked Seam</u>

The closed seam is rubbed and a woven tape is attached to the reverse side/flesh side with two rows of stitching- one on each side of the seam on reinforcement tape. Such a seam is called a French/ Silked seam. There is a special machine for this- a twin needle, two thread chain stitch machine.

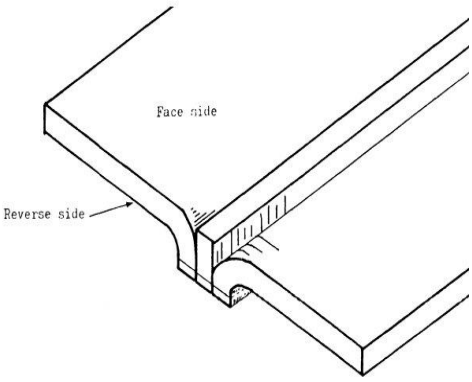


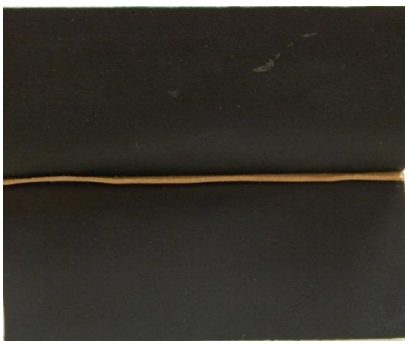


4.French/Silked Seam

Welted close Seam

It is a variation of a closed seam, used on a light material to overcome the tension problem. But the main purpose of this seam is to protect the back seam (thread) during a rough and tough wear of the shoe in jungle or fields, where the person is passing from the bushes and dry branches of small plants. A strip of material is placed in between the component and stitched with the edges.

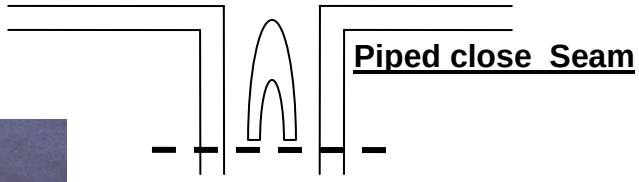


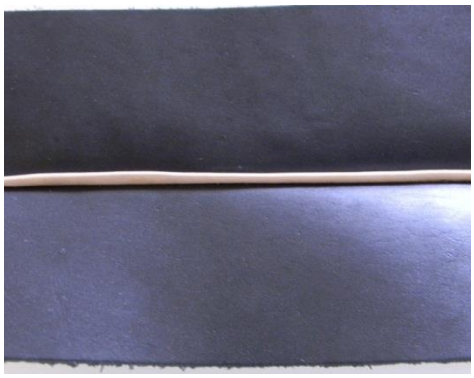


5.Welted close Seam

Piped close Seam

It is a variation of a welted seam for the same purpose but the look and the fashion is more emphasized in this kind of seam. In this, a piping of the same or contrasting colour is inserted and stitched in between the two components for the purpose of design or decoration.





6. Piped close Seam

Blind Seam

It is used when the stitching holding the two pieces is not to be seen. The edge of the bottom component is underlay skived on the grain side. The top component is stitched face to face on the stitch mark. Adhesive is then applied to the part of the bottom component. Then the top piece is pulled back and stuck. It is usually used to join mudguards to vamps.

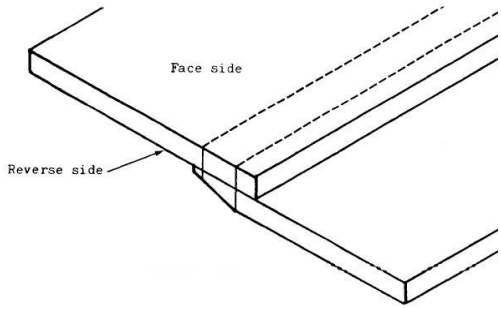
7.Blind Seam

Lapped Seams

It is mostly used for joining vamps to quarters, toecap to vamps, aprons to wings, etc.

The edge of one component is placed over the top of another and stitched through both components. The underlay piece has an allowance of 8-10 mm for men and 6 mm for ladies shoe, and is underlay skived and the top component can either be raw edge, folded or gimped. The pieces are stitched together usually with a single row but double row stitch can also be done for the decoration purpose.

- The first stitch will always on the full thickness of material.
- The skiving must be 2-3 mm behind the stitching row for full strength.
- The skiving must be thin on the underlay edges to avoid “print through” after lasting.
- The edge of the top piece must not be skived too thin; otherwise it will tear with strain.



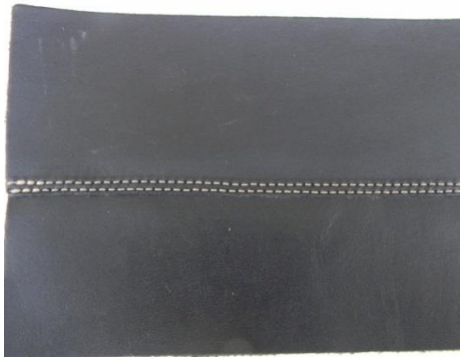
8.Lapped Seams

Normal lapped seam

As the name refers it is lapping on component on top of other component. The underlay piece has an allowance of 8-10mm for men and 6mm for lades shoe, and underlay skived and to top component can either be raw edge, folded of gimped. The pieces are stitched together usually with a single row but double row stitch can also be done for decoration purpose.

- ✓ The first stitch will always on the full thickness of material.
- ✓ The skiving must be 2-3mm behind the stitching row for full strength.
- ✓ The skiving must be thin on the underlay edges to avoid “print through” after lasting.
- ✓ The edge of the top piece must not be skived too thin; otherwise it will tear with

stain

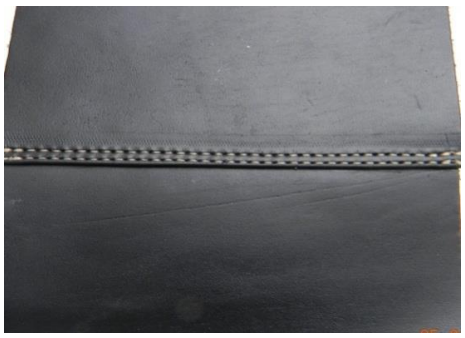


9.Normal lapped seam

Folded lapped seam

Folded lapped seam is done by over lapping the folded upper over the underlay component. The pieces are stitched together usually with a single row but double row stitch can also be done for decoration purpose.

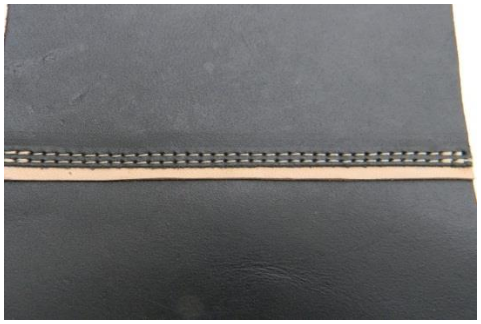
- ✓ The skiving is twice of the folding i.e. if 4mm folded, 8mm skiving will be done
- ✓ The underlay piece has an allowance of 8-10mm for men and 6mm for lades shoe



10. Folded lapped seam

Welted lapped seam

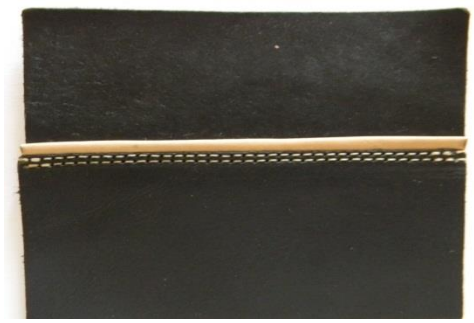
It is a variation of a lapped seam, used on a light material to overcome the tension problem. But the main purpose of this seam is to protect the lapped seam (thread) during a rough and tough wear of the shoe in jungle or fields, where the person is passing from the bushes and dry branches of small plants. A strip of material is placed in between the component and stitched together usually with a single row but double row stitch can also be done for decoration purpose.



11.Welted lapped seam

Piped lapped seam

It is a variation of a welted seam for the same purpose but the look and the fashion is more emphasized in this kind of seam. In this, a piping of the same or contrasting color is inserted and stitched in between the two components for the purpose of design or decoration.

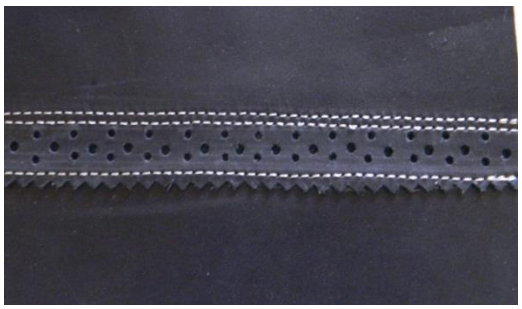


12.Piped lapped seam

Lapped seam with punching and gimping

This type of lapped seam is mostly used in brogue shoes. In this seam edge is gimped:-

- by hand with the help of gimping scissors
- by cutting die in the cutting room
- by perforated machine

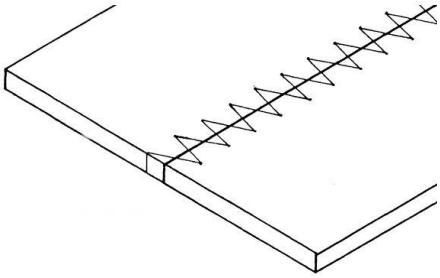


13.Lapped seam with punching and gimping

Butted seam

This stitching is made by stitching two pieces together without having any allowance by facing both pieces in same way. This seam can also be called zig zag seam. This is done on the zigzag machine. Normally the stitch throw is 6mm for leather, 8mm for synthetics and 10mm for fabrics. Butted seam can be done with strip and without strip

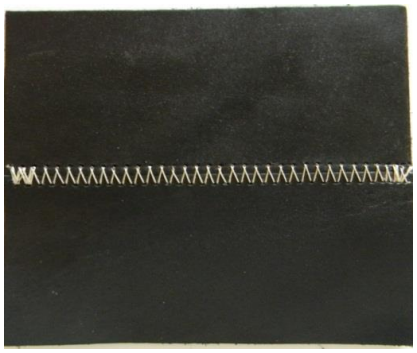
- ✓ Avoid the use of P point needle on a zigzag machine.
- ✓ It is not a strong seam and must be reinforced in some way.
- ✓ Stitching has to start from the top



Butted seam

Butted seam without strap

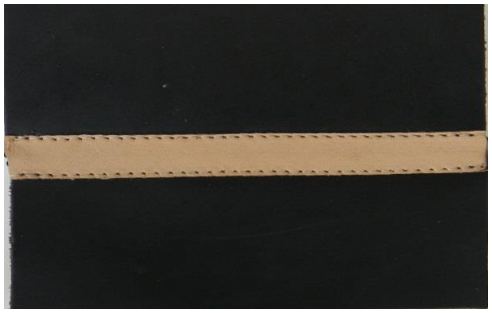
In this type of butted seam strip is not used over the seam. Reinforcement is used in order to make it strong.



14. **Butted seam without strap**

Butted seam with strap

In this type of seam strip is used so as to reinforce it and give a good look.



15. **Butted seam with strap**

Decorative Stitching

Decorative stitching is done only for decorating the components. It can be of three types:-

1. Cable stitching
2. Fancy stitching
3. Cording stitching

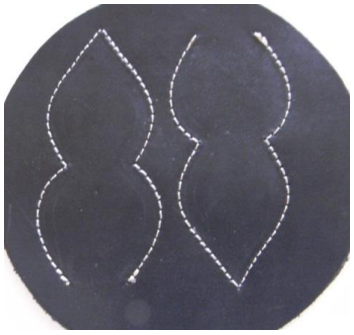
Cable stitching:

In this type of stitching heavy-duty machine (4-5 stitches per inch) is used. In type of stitching lock at the start and end of the seam is not made, for the reason of the thread is thick. The top thread is pulled downside and past it with adhesive or reinforcement tape. As it known this type of seam is mainly used for decorative purpose and for bold look.

16. Cable stitching:

Fancy stitching:

This type of stitching is used with thin thread, light duty machine and thin needle for decorative purpose. It is mainly used for decorative purpose. In this locking the seam at the start and end is necessary for giving reinforcement to the seam.



17. Fancy stitching

Cording:

It is done for giving the raised effect. In this case a cord is attached on the flesh side of the component with the use of adhesive. A reinforcement tape is attached on the cord and after this stitching is done on the both side of the cord. This is called cording seam. When no cord is attached with the component, it is called air cording. Cording is done with special machine called cording machine.

18.Cording

Points to Watch

The distance of stitching from edge is important to the appearance and

performance of the seam.

- Too narrow an edge distance may lead to upper material failures.
- Too wide an allowance adds to unnecessary bulk and problems in wear.
- Always use suitable needle point for particular seam.
- Always use suitable thread for particular seam
- Always use suitable needle and thread relation for particular seam
- Always use suitable sewing machine for particular seam

- Always use suitable combination of needle, thread and sewing machine for particular seam.
- Always do suitable skiving for particular seam
- Follow all other technical inputs to perform such seams.

LAP Test Practical Demonstration

Performing sewing different shapes and components

Name: _____ **Date:** _____

Time started: _____ **Time finished:** _____

Given necessary templates, workshop, tools and materials you are required to perform the following tasks within 4:00hours.

Task 1: make sure the sewing machine have the upper thread and lower (bobbin) thread

Task 2: prepare scrap leather

Task 3: start stitching and see what both thread loop formation look like

Task 4: start adjusting tension either the bobbin thread loops or spool thread loops where not proper

Task 5: at the last check both loops threads locked midway between the two layers of cloth

Instructions:

Synthetic sewing different shapes and components

1.Paper Exercises

1,steps of 1 ---18.

Request your teacher for evaluation and feedback of your work

Note: **Satisfactory rating - 15points** **Unsatisfactory - below 15points**

Operation sheet 3

Operation title: - Performing sewing different shapes and components

Purpose	To acquire the trainees with sew operation and maintenance practice
Equipment ,tools and materials	Supplies and equipment needed or useful for machine sewing include these: • Scissors • Machine needle • Cutter • Synthetic • Thread • Adhesive
Conditions or situations for the operations	• All tools, equipment's and materials should be available on time when required. .Appropriate table, working area/ workshop to sewing Performing sewing different shapes and components

Procedures	14. Clean sewing machine 15. Do Pre operation 16. Thread gaid 17. Check needle position 18. Bobbin wending 19. Insert bobbin with bobbin case 20. Cutting paper by d\t shape
Precautions	• Care should be taken while connecting with electric power, sewing , machine Preparing materials, tools and equipment are according to inseminator command. •
Quality criteria	• Did personal protective equipment worn while performing basic stitching sew machine • Did trainees the component of the Performing sewing different shapes and components • proper without leakage • The machine functional for sew separation

Information sheet -6 Cleaning and oiling sewing machine

6.1. Replacement of Fluids and Lubricants

Sometimes machine stored with oil in tank and lubricants in the parts long time. Over a period of time oil and grease leaving a thick sludge in the tank and parts and resulting in a no-start gummy mess when you return to use the machine**.**

Before replace the fluids and lubricants; first, it will be required to flush out the old oil from the tank and clean old grease lubricants from moving parts and bearings, and thoroughly flushing the tank and parts clean with cleaning fluids.

Points to Note: Using the wrong lubricating product or oil for your sewing machine can be a slippery slope to problems for your sewing machine. Don't risk damaging your machine or make things more difficult for yourself, get the correct tool and product for the job.

As far as where to oil, refer to your user's manual for that information. If your manual doesn't have any oiling instructions, then it is the manufacturer's intent that any lubricating that is required is to be done by the technician when you take the machine in for service and not the owner/ user. If this doesn't sit well with you, then you should consider getting a quality of machine which you can clean and oil yourself. The instructions will be right in the manual.

Sewing Machine stored for a long period of time may require preparation before being started for the first time in several months.

The after run procedure is intended to help minimize the effects of long term storage, but sometimes machine stored with oil in tank and lubricants in the parts.

Over a period of time oil and grease leaving a thick sludge in the tank and parts and resulting in a no start gummy mess when you return to use the machine**.**

First, it will be required to flush out the old oil from the tank and clean old grease lubricants from moving parts and bearings, and thoroughly flushing the tank 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.

Figs 2 remaining gummed dirt or lint in the feed dog

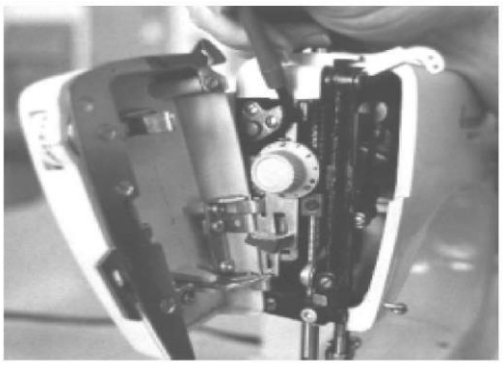
The essential parts like needle, slide plate, presser foot, throat plate, bobbin case and face plate need to be removed from the machine and soaked in a tray filled with cleaning fluids.

Figs 2 cleaning fluids.

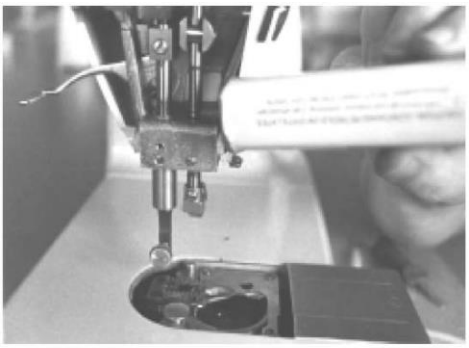
6.2. Petrol/ Gasoline: Gasoline is a great solvent for cleaning. Gasoline will also cut the dirt and hardened oil.

Cleaning Face Plate Area by Gasoline:

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. Noother 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 gasoline on it can be used to clean the needle-bar and presser bar of any gummy grease.



Face Plate Area—Place a drop or two of oil on moving parts where they slide through a housing or move against each other.



Face Plate Area—Remove lint from faceplate area using a soft brush. A cloth dipped in petrol can be used to remove grease and grime.

6.3. Kerosene

Kerosene is a satisfactory cleaner to cut the gummy substance that collects on the mechanical parts of a sewing machine. Kerosene is a wonderful penetrant and will eventually work its way into almost anything and free it up. It frees up moving parts

and it is rust preventive and it will dry out.

Take off all access plates, the motor and light if present, and the hand wheel and study the machine. Look for old dried up grease coating moving parts. This is usually found inside the upper pillar, behind the rear access plate, and in geared machines, wherever beveled gears meet. This point is especially critical on the undersides, which are gear driven, remove the hand wheel and drive unit. You will find old grease there. Use the kerosene and a brush to clean all this old grease off. If the mechanical parts are badly gummed, the head of the machine may be removed from the stand and soaked overnight in a dish pan or other flat container of kerosene.

With brush and kerosene clean the bearings and moving parts.

When things seem to move reasonably easily, reassemble. Lightly apply oil in all moving parts and oil points with sewing machine oil. Grease the gears with new lubricant.

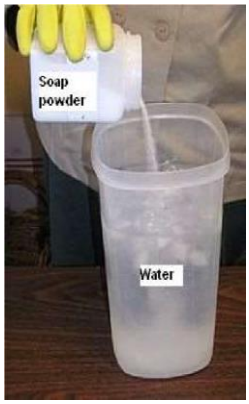
6.4. Water

Using water to dissolve and extract substances on machine body and give shiny.

Now let's consider about appearance. To clean a machine's surface,

Use first a gentle mix of diluted dish soap (or) Soap Powder and water,

rubbing small areas at a time with a soft



Often there is old oil or shellac on the surface. The earlier with kerosene may have loosened a lot of that up and it will rub off, too. Often it can be scraped off with a fingernail. Don't use hard scrapers, you'll scratch the enamel. Once the plain dirt off, wipe with sewing machine oil several times over a period of days, then wipe off all the oil and wax.

The bright metal pieces, end plates, back plates, feet, etc. can be soaked in a solution of water and detergent, then scrubbed with a tooth brush and they will come out looking very good.

Self-Check 6 Written Test

Name: _____ **Date:** _____

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

Test I: Fill in the blanks:

1. Using _____to dissolve and extract substances on machine body and shiny.
2. _____ us satisfactory cleaner to cut the gummy substance that collects on the mechanical parts of sewing machine.

3. _____ is a great solvent for cleaning.
4. Use _____(or) _____ to remove gummed dirt or lint in the feed dog.
5. The _____ is a part of housing that is mounted on hinges on newer type sewing machine.

Test II: True (or) False:

1. To clean surface, use first a gentle mix of diluted dish soap powder and kerosene, rubbing small areas at time with a soft cloth.
2. Use the kerosene and brush to clean all this old grease off.
3. Gasoline will cut the dirt and hardened oil.
4. Use water to clean to clean face plate area and parts.
5. Flushing the tank and parts clean with cleaning fluids.

Test III: Match the following:

1. Pointed instrument a) Tray filled with cleaning fluids
2. Soaking b) Penetrant
3. Gasoline c) Detergent
4. Water d) To dig (or) scrap away
5. Kerosene e) Solvent

Note: **Satisfactory rating - 15points** **Unsatisfactory - below 15points**

Information sheet- 7 Diagnosing and rectifying minor problems in the sewing machine

7.1. Isolating Faulty Machines and Using Appropriate Procedures and Tests to Locate and Identify Faults of sewing machine

When access to machine is required for inspections, repairs, maintenance, alterations and cleaning or the machine is to be withdrawn for assessment or repair, there are general and specific requirements for employers and their 'authorized person' for the isolation of the machinery.

1. Requirements for Isolation of Machine problems

- Where energy sources are present, instructions for the isolation and re-activation of machine need to be developed for each piece of machine as part of their safe work instructions (SWI).
- The detail of the instructions will depend upon the identification and assessment of the hazards and consequential risks involved with each piece of machinery.
- It is essential that supervisors carry out this assessment and put into place control measures including machine isolation instructions before the machine becomes operational.
- Isolation points, which can be locked or tagged out, should be provided along the route of each potential energy source where practicable.

2. **Information From Suppliers, Manufacturers And Importers Of Machine problems**

 Suppliers, manufacturers and importers of the machine have a legal obligation to supply sufficient information to enable the safe operation and maintenance of the machine including isolation and the risk associated with machine during repair, service or maintenance.

3. **Isolation Of Machine: problems**

- Using the Hierarchy of Control
- When isolating or removing machine from service, it is important to consider the hierarchy of controls in the type of isolation used which are either 'Administrative (or) Engineering'.
- An isolation tag gives the least protection whilst isolation using a locking device and removal from service through physical relocation or the use of barriers where practicable provides a higher level of protection to the users of the area and maintenance personnel. A tag is not in itself an effective isolation device. A tag acts only as a means of providing information to others at the workplace and a lock should be used in preference to a tag.
- Identification and isolation of energy sources
- Ensure all electricity sources are identified and isolated, some machinery and equipment may have independent electricity sources.

- Except in the case of equipment connected via a plug and socket, a competent person such as an electrician should isolate and disconnect the electricity supply to an item of plant.
- Emergency stop buttons or similar stop devices on their own will not achieve full isolation. It is dangerous to rely on emergency stopping devices, as an isolation source as they cannot always be locked out and therefore may allow energy to be inadvertently re-activated. They may also allow control circuits to remain live within the machine.
- Portable machinery/equipment:
- Turning off the power supply and removing the plug from the supply socket (if safe to do so) can normally isolate simple portable type machinery/equipment
- A tag or physical restraint device can then be applied as per this procedure

7.2. Procedures for the Isolation of Machine

1. If safe to do so, ‘stop machine and isolate each energy source’ according to Safe Work Instruction for the machine.
2. A yellow & black, 'Caution', isolation tag must be completed, signed and secured to each isolation device at a prominent position. The workshop supervisor or responsible officer must be notified of the machine failure and isolation.
3. The workshop supervisor or responsible officer must check that machine is isolated effectively and is de-energized for safe repair, service or maintenance work.
4. **'**Caution' tags and locks may be removed by appropriate service people, technical staff, or workshop supervisor or responsible officer after consultation or once machine is deemed safe for repair and testing purposes.
5. The workshop supervisor or responsible officer may remove original tag and re-tag out machine with his or her own completed and signed **'**Caution**'** tag, if required.

• The 'Caution' tag must remain on the machinery/equipment until machinery/equipment is fully repaired and ready to be re-energized.

6. Machine may then undergo repair, service or maintenance work by competent service providers or authorized personnel.

- These personnel must securely apply a completed and signed white & red 'Danger' tags and isolation device to each isolated energy source.
- Each member of the service provider must check the isolation of the machine and use individual tags and isolation devices on each of the isolation points along the route of the energy source.
- A 'Danger' tag may only be removed by the person who applied and signed the tag, unless in an emergency.

7. Until all tags are removed, the machine must remain out of service. Once removed, any tags must be destroyed and not reused.

8. Re-energizing of the machine under the supervision of the workshop supervisor or responsible officer, ensuring all energy sources are clear, safe to activate and that protective guarding or interlocks are operational.

7.3. Isolating Faulty Sewing Machine and Identify Faults:

Sewing Machine-Isolating Procedure:

1) Stop and isolate each energy source' by turning off the power supply and removing the plug from the supply socket.

2) A **yellow & black, 'Caution',** isolation tag must be completed, signed and

secured to sewing machine at a prominent position



3) The workshop supervisor checks that sewing machine is isolated effectively and is de-energized for safe repair, service or maintenance work.

4) **'Caution'** tags and locks removed by appropriate service people, technical staff, or workshop supervisor after completion of repair and testing.

5) The "**Caution"** tag must remain on the sewing machine until sewing machine is fully repaired and ready to be re-energized.

6) Sewing machine may then undergo repair, service or maintenance work by competent service personnel.

- Service personnel must securely apply a completed and signed
-

white & red 'Danger' tags and isolation device to each isolated energy source.


- The service provider must check the isolation of the sewing machine and use individual tags and isolation devices on each of the isolation points along the route of the energy source.
- A **'Danger'** tag may only be removed by the person who applied and signed the tag, unless in an emergency.

7. Until all tags are removed, the sewing machine must remain out of service. Once removed, any tags must be destroyed and not reused.

8. Re-energizing of the sewing machine under the supervision of the workshop supervisor or responsible officer, ensuring all energy sources are clear, safe to activate and that protective guarding or interlocks are operational.

Identify Faults in Sewing Machine:

Most sewing machine problems can be traced to poor general maintenance or neglect. Depending upon how much use your sewing machine receives daily, weekly, or monthly, you will want to maintain it accordingly. All machines have owner's manuals that give recommendations for care and maintenance. If you do not have one for your machine find a dealer or check on line at the manufacturer's Web site to order a copy. The goal is to keep your machine running and problem free. When problems do arise, check your owner's manual first and then the list given here for ways to correct them before heading off to the repair shop.

Common Faults may occur on Sewing Machine:

1) Machine not sewing: If the machine is simply not sewing or has other related errors,

the easiest thing to check is whether the thread and needle are set up properly.

2) Breaking Needles: Needles may break due to simple reasons like prolonged use or hitting a straight pin; these breaks can be difficult to predict. However, needles also break from very controllable factors such as forcing the fabric through the feed or by using the wrong needle.

3) Skipping Stitches*:* Skipped stitches are usually due to a bad needle. The needle may have become damaged or bent by sewing material too thick for the needle, forcing material through the feed dog, or hitting a straight pin.

4) Sewing Machine Thread is Tangling, Bunching or Breaking: Having the thread not cooperate as intended is a problem that can lead to stress among those who sew. The good news is that thread problems usually arise from very fixable issues.

- Thread Looping and Bunching
- Thread Breaking
- Tension Adjustments

5) Mechanical Noises and Maintenance: If the sewing machine is making uncommon noises, such as grinding or banging, the machine parts may be jammed or in need of cleaning or maintenance. Do not use the machine when it is operating this way, and turn off power to the machine before inspecting the issue.

Self-Check-7 Written

Name: _____ **Date:** _____

Test I True (or) false: (5 x 1 = 5 Points)

1. Until all tags are removed, the sewing machine must remain out of service.

2. At the workplace a lock should be used in preference to a tag.
3. Machine operator carryout assessment and put in to place control measures including machine isolation instruction before the machine becomes operational.
4. Needles may breaks due to prolonged use (or) hitting a straight pin.
5. The operator can remove a 'Caution' tags and locks from the machine.

Test II: Match the following: (5 x 1 = 5 Points)

1. Danger Tag	a) Faults
2. Caution Tag	b) Engineering
3. Re-energizing	c) Service personnel
4. Hierarchy of control	d) Technical staff
5. Thread Breaking	e) Protective guarding

Information sheet- 8 Carrying out sewing of components

materials such as Upper leather, Lining leather, Textiles, Re-enforcements and Bottom components in preparation of cutting. All concerns activities help to participants to produce quality and productivity.

Collect, sort and lay out materials in preparation of cutting

.1**Material collection:** It means the amount of the material issued to the clicker from the store for a particular order or plan. A work ticket is issued to the clicker. In this work ticket order no., color of the leather, sizes of the pairs, sizes of the skins, no. of

the pairs to be cut etc. is mentioned. On the basis of this work ticket leather is issued to the clicker. Clicker collects the leather from the s

Collecting sewing component are figs are not collected

Self-Check-8 Written

Note: **Satisfactory rating - 15points** **Unsatisfactory - below 15points**

LG #55	**LO #4- Check quality and dispatch the stitched components**
Instruction sheet	

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

- ✓ Checking stitched Components
- ✓ Addressing or resolving irregularities
- ✓ Bundling, stacking, storing completed component parts, panels or pieces

✓ Recording and reporting actions taken

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 –

- Stitched components are checked against job specifications and workplace standards.
- Sewing faults or irregularities are addressed or resolved in accordance with workplace standard procedures.
- Completed component parts, panels or pieces are bundled, stacked, stored or dispatched in accordance with workplace procedures.
- Actions taken are recorded and reported

Activity

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

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

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

14. Read the information written in the “Information Sheet 4”

Information sheet- 1 Checking stitched Components

1.1 Pre-start checks

1) saw blade is in good condition and electrical leads are not faulty,
2) extraction dust collection box is empty,
3) guards are in place and adjusted,
4) stop button is working properly.

Operational procedure

1. Turn on saw and listen for any unusual noises or vibrations.

2. Put timber in position; push it hard against the fence with free hand, well clear of

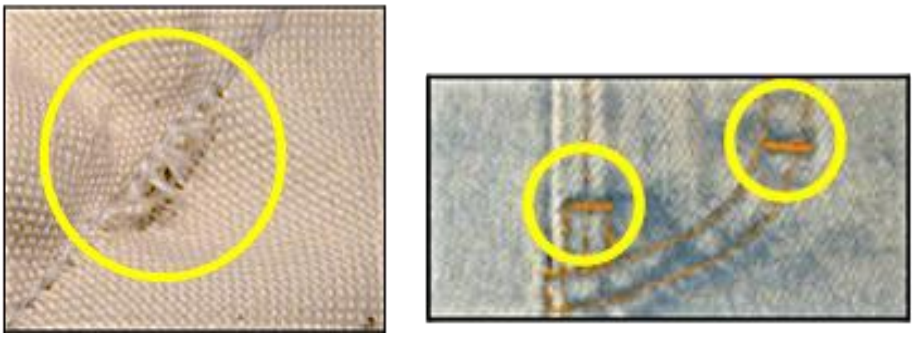
the blade; and stand to one side of the saw with feet positioned to give comfortable balance.

3. Pull the saw forward with the other hand, allowing the blade to cut smoothly without laboring, and then push it fully back behind the fence.

4. Push the off cut away from the blade with the longer length, and then remove both

DESCRIPTION: Where the stitch line is still intact but the yarns in the fabric have ruptured.

Reinforce stress points with Bar tacks. Make sure the bar tacks are the proper length and width for the application;



Figs.1 Check component Stitching

Make sure the ideal seam construction is being used; 4) Contact your fabric supplier

Improper Stitch Balance

Where the needle loop is not pulled up to the underside of the seam and the

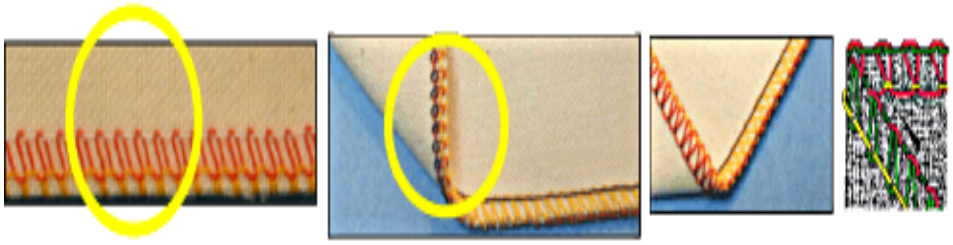
purl" is not on the edge of the seam.

SOLUTIONS:

1) Use a quality thread with consistent frictional characteristics; 2) Properly balance the stitch

so that when the lopper thread is unraveled, the needle loop lays over half way to the next

needle loop on the underside of the seam.



Figs2 Checking Threading breakages

Check the following Threading

a) Has there been a thread change:

- From one type to another?
- From one size to another?
- From one supplier to another?

b) Check the quality of the thread for obvious defects:

- Knots, slubs, neps, improper twist, etc.
- Does the thread feel weak?
- Does the thread feel dry or pull through the sewing machine with a rough drag?

c) Check the quality of the piece goods being sewn:

- Has there been a change from one supplier to another?
- From one type to another?
- In the weight or stiffness of the fabric?

Self Sheet- 1 written test

Name: _____ **Date:** _____**Time**

started: _____ **Time finished:** _____

Short answer(5point)

1. Pre-start checks(2.5 point)

2. Check the Threading step (2.5 point)

Note: **Satisfactory rating - 5points** **Unsatisfactory - below 5points**

Information sheet- 2 Addressing or resolving irregularities

2.1 Recording sewing fault

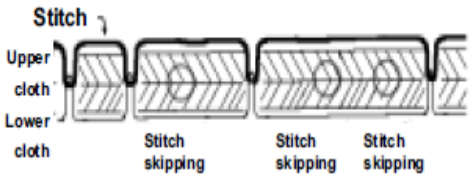
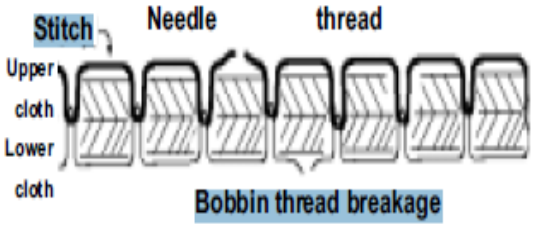
Mainly there are three types of sewing faults

1) Defects due to problem of stitch formation.

The first step in producing a stitch on a sewing machine is the formation of the needle thread loop. This step is always the same regardless of the type of stitching being produced, or the nature of the machine being used. Proper formation of this loop depends on the tendency of the thread to bulge away from the needle as it is drawn upward after reaching the lowest point of its stroke – due to inertia and friction against the material through which it passes.

Any interference with the formation of the needle thread loop will result in faulty stitch formation. One of the most common conditions is that the material stitched is not held firmly by the presser foot at the point where the needle passes through, allowing the material to flag, or move upward with the needle as it rises. Either no loop is formed at all, or the loop is formed too late.

2.2 Skipped or broken stitches result.

Stitch skipping	Stitches of sewing thread partially skip and stitching is not performed completely.	
Thread breakage	When the force is applied to stitch, sewing thread is cut.	

Correct setting of the needle is necessary for the forming of a good loop. At the proper height, with the eye at ninety degrees to the direction from which the point of the shuttle (or hook, or lopper) enters the loop, the needle is positioned for normal loop formation.

Since the thread tends to form an equal loop on each side of the needle, a guard is used to push the loop through to the side from which the thread is taken by the stitch forming mechanism (shuttle, hook or lopper). Correct setting of this guard is necessary for good loop formation.

2) Defects due to fabric distortion.

Causes: Bad and bent needles, bent trick walls, uneven yarn tension, needle Timing, yarn carriers set wrong

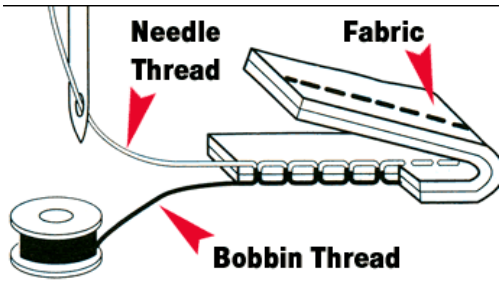
To get the right tensions you must:

a) Be sure the presser foot is down when you sew

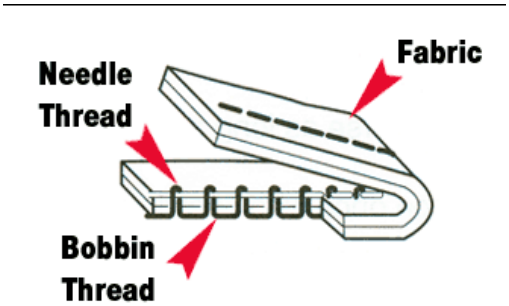
b) use the same cotton for both the upper thread and the lower thread.

Now, to guide you in the adjusting, take a look at the stitching the machine makes. Set stitch-length control for a medium length of stitch. Fold a 6- or 8-inch square of medium weight cloth and stitch diagonally across it at an angle of about 45 degrees.

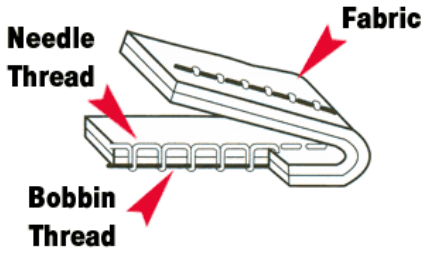
Now, inspect the stitching. A perfect stitch will have threads locked midway between the two layers of cloth, with no loops on the top or bottom of the seam and no puckers in the cloth.



If the bobbin thread loops show on the top side of the seam and the top thread is straight, the upper tension is tighter than the lower.



If spool thread loops show on the underside of the seam and the lower thread is straight, the upper tension is looser than the lower



Self Sheet- 2 written test

Name: _____ **Date:** _____

Time started: _____ **Time finished:** _____

Short answer(5point)

1.To get the right tensions you must:**(1.5 point)**

A.---------- b.----------

2.If the bobbin thread loops show on the top side of the seam and the top thread is straight, the upper tension is----------:**(1.5 point)**

Note: **Satisfactory rating - 5points** **Unsatisfactory - below 5points**

Information sheet-3 Bundling, stacking, storing completed component parts, panels or pieces

3.1 Bundling leather

What are bundle and its use?

Tie or roll up a number of leather together as though into a parcel it will be called bundle of leather. It used to

But when we tried to store leather using roll/bundle form, we have to be take cure for the leather because grain crack and damaging might happen due to improper rolling, excess bundling of leather together and over lapping of one roll over the others. While bundling, if we use the 10 leather in one bundle, 9 leather roll inside by keeping the grain side of the leather outside and visible and the flesh side inside.

The remaining one leather will be on the top of the other nine leathers and rolled in opposite form (flesh side outside and grain side by keep inside.). This leather used as a cover / wrapping leather for the other nine leathers.

- keep leather from different leather related problem
- keep leather quality& save time for assortment of different leather panels

- easy to keep in the store

Figs 1 Bundling leather

1 bundling processes

After bundling processes we are intended for storing process .before proceeding storing process let us to know what is storing first

3.2 Storing Leather

What is storing: Keep or accumulate (something) for future use.to apply storing process preparing store should done first

Storing leather properly when it is not being used is the most important thing you can do to keep it in its best condition. When leather is stored it should not be in extreme hot or cold, or in excessive dryness or humidity.

Here are a few techniques for keeping leather in its prime.

- **No sun**. Keep leather out of sunlight, which can cause it to fade.
- **Cleaning**. Clean leather regularly by brushing it with a microfiber cloth. For a more aggressive cleaning, dampen the cloth and add a little moisturizing soap.
- **Conditioning**. To keep leather elastic, apply leather conditioner with a soft cloth
- **Storage**. Store leather or suede garments in a dry, well-ventilate area.

- Leather can be virtually indestructible if treated properly. With a little bit of care and attention, your new leather will last well into vintage age and your vintage leather will continue to have a long happy life.

  The most important things to remember about leather is not to get it soiled, soaked, or let it dry out. Despite the fact that all of these things can be rectified to some extent, it is helpful to not let leather get into such a condition in the first place. Proper storage, cleaning, and conditioning will keep leather looking as good as new no matter how old it is

Self Sheet- 3 written test

Name: _____ **Date:** _____

Time started: _____ **Time finished:** _____

Short answer(5point)

1. Write the use of bundling leather? **(2point)**
2. What is the difference between bundling and storing of leather? **(1point)**
3. Mention at leas3 Technique of leather storing?**(2point)**

Note: **Satisfactory rating - 5points** **Unsatisfactory - below 5points**

Information sheet-4 Recording and reporting actions taken

4.1 Work place procedure are used to:

provide employees with approved methods of carrying out particular tasks one way of writing up a work place procedure is to use the format of a safe operating procedure, or sop.

This can be posted up on laminated page near the machine. Some companies also use sops to verify that the operator has been trained in that procedure by asking them to sign a copy, which is then kept in their personnel file.

More complex safety procedures can be documented in the form of a job safety analysis also referred to as a safe work method statement .the layout of these documents make it easier to show multiples tasks and include the responsibilities of deferent personnel.

Particular types of procedures are included in the company's policies and procedures manual .these includes tasks such as keeping work shop, machine isolation and reporting faults. Some of these are also reproduced in the employee induction manual; so that new employees can be made aware of them before e they start work

4.2 . Machine Isolation Procedure

Isolation procedures have been developed by the company to minimize the likelihood of machines being activated when they are faulty or in the process of being serviced. Set out below is the general procedure for isolating machines.

General procedure. When a machine is isolated, an authorized person shuts down the power supply and Attaches a lock-out tag to the switch. They also place a lock through the switch to mechanically lock it out. The tag and lock remain in position until the machine is safe to use again. Once it has been tested to ensure that all functions are back to normal, the

same person removes their tag and informs the Supervisor that the machine is back in service. In some cases, several people may be working on a machine or system at the same time, in which case each individual will place a lock-out tag on the machine. Each person is responsible for removing their own personal lock-out tag. At no time is anyone allowed to remove another person's tag unless there is an emergency situation and that person is away from the site. In this instance, the Site manager or another authorized officer must establish that the person cannot be contacted, and then seek the opinion from a qualified person as to whether the lock-out can be Removed.

4.3 . Employees' responsibilities

- ✓ Employees are responsible for ensuring that:
- ✓ Electrical faults or hazards are reported to your Supervisor immediately, and the
- ✓ Machinery is isolated and tagged out
- ✓ Correct site isolation procedure is followed at all times
- ✓ Electrical equipment and leads are checked for obvious faults before being used;
- ✓ Including exposed wires and broken insulation
- ✓ Extension leads are kept off the workshop floor and away from water.

Self Sheet- 4 written test

Name: _____ **Date:** _____

Time started: _____ **Time finished:** _____

Short answer(5point)

Employees' responsibilities

1.----------

2.----------

3.----------

4.----------

5.----------

Reference Materials

Book:

TTLM of footwear level one Performing Leather Grading Operations

TLM of footwear level two on (OS) Version 4January 2012 **IND FP2 TTLM 0212v1**

Webs

www.geine leather

Galen leather.com/bog

1. http://www.retirementlivingarticledirectory.com/
2. http://www.sewing.about.com/
3. http://www.wikihow.com/
4. http://www.sewing.about.com/od/sewingmachineind ex/a/machinemaintain.html

AKNOWLEDGEMENT

We wish to extend thanks and appreciation to the many representatives of TVET instructors and respective industry who revision new OS on footwear and Teaching, Training and Learning Materials (TTLM) proposed in LIDI (LEATHER INDUSTY DEVELOPMENT INSTITUTE) .

experts of Oromia Regional TVET bureau and Federal TVET bureau in Bishofitu city BIN INTERNATIONAL HOTEL

This Teaching, Training and Learning Materials (TTLM) was developed on December, 2020 Bishoftu

No	Full Name	Region	Institution	Qualification	Position	Telephone	e-mail
1.	Asnakech Lakew	oromia	Bushoftu	B.sc footwear technology	High Ins Instractor	0911071066	
2.	Mekonen kene	.oromia	ATKBPT Asellaa	B.Sc. in Leather and leather products technology	Trainer	0915984655	Mekonenkene30@gmail.com

3.	Shitaye Teklu	Oromia	Bushoftu	B.Sc. in Leather and leather products technology	Trainer	0917849948	shitayeteklu@gmail.com
4.	Tarekegn Guluma	Oromia	Nekemte	B.Sc. in Leather and leather products technology	Instractor	0917078832	tarekengguluma@gmail.comleather2019