



# **INTERMEDIANT APPAREL PRODUCTION**

## **NTQF Level-II**

### **Learning Guide#37**

**UNIT OF COMPETENCE: Assemble  
Garment Parts**

**Module Title: Assembling Garment Parts**

**LG CODE: IND IAP2 M05- LO2- LG37-**

**TTLM CODE: IND IAP2 TTLM37 0919v1**

**LO2: Prepare sewing machine for operation**



<b>Instruction Sheet</b>	<b>Learning Guide #37</b>
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This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- ✓ Clean and lubricate Machine parts
- ✓ set-up Machine
- ✓ Adjust and thread Machine
- ✓ Control Speed of machine and work handling
- ✓ Identify and repair Minor machine problem or fault
- ✓ Monitor machine operation

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:**

- ❖ Machine parts are cleaned and lubricated in accordance with manufacturer's instructions
- ❖ Machine is set-up, adjusted and threaded in accordance with work specifications and company standards
- ❖ Speed of machines and work handling are controlled in accordance with company's procedures
- ❖ Minor machine problem or fault is identified and repaired in accordance with manufacturer's manual
- ❖ Machine operation is monitored as per procedures

**Learning Instructions:**

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



6. If you earned a satisfactory evaluation proceed to “Operation sheets and LAP Tests if any”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity.
7. After you accomplish Operation sheets and LAP Tests, ensure you have a formative assessment and get a satisfactory result;
8. Then proceed to the next information sheet

<b>Information Sheet-1</b>	<b>Clean and lubricate Machine parts</b>
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## Introduction

Cleaning of used lubricants are a critical for ensuring the proper machine operations. Your sewing machine will work better if you oil and clean it regularly. It will also run more quietly. Most sewing machines require you to remove the fabric lint and threads that accumulate with each project and then apply drops of oil. It's important that you only use sewing machine oil.

- Feed dog
- Bobbin case and spool
- Wheel
- Lever
- Needle

Clean the feed dog and Remove the bobbin. Use the brush supplied to clean the area, remove the bobbin case

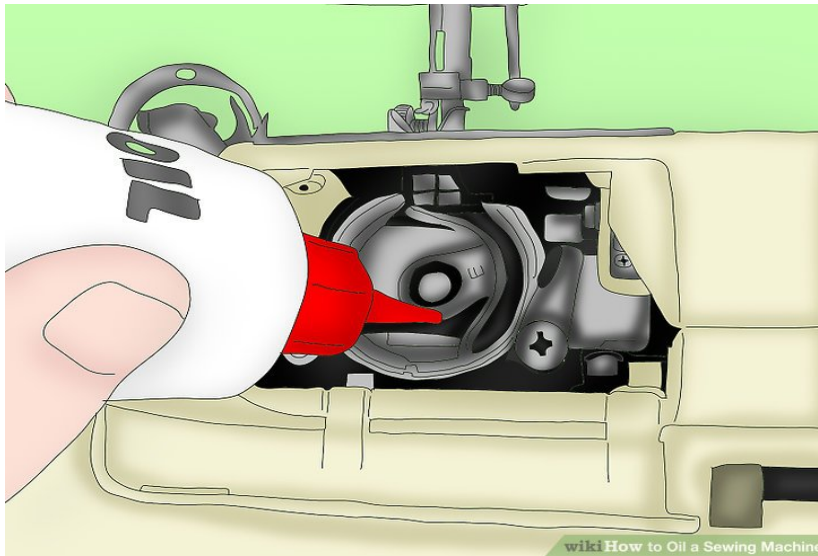
### Preparing to Oil the Machine

Lubricate the points in the instructional manual with 1-2 drops of sewing machine oil. Turn the hand wheel until the hook race is in the left position. Replace the hook

**1,** Follow the instructional manual.

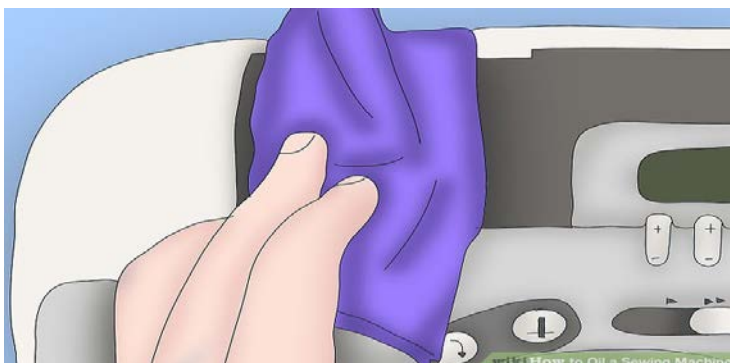
Each sewing machine brand is different, so it's a good idea to check the manual that came with your sewing machine for directions on how to clean and oil the machine.

- Some manufacturers recommend cleaning the machine after every 10 hours you use it. Clean it when you see lint starting to gather. Some older machines mark the spots where you should drop oil in red. Others tell you where to drop it using pictures to guide you.
- If you don't have a copy of the instructional manual, you should be able to get one on the manufacturer's website. You might even be able to download it. If that doesn't work, call the manufacturer and ask for one. You will be asked the machine name, model, and serial number most likely. You could also ask a local dealer.
- Some machines do not need to be oiled. They are self-lubricating. Such a machine will still need to be maintained, but if it says not to oil it at home, don't.



2. Go slowly. You want to make sure that you don't use too much oil. It's a good idea to use a little bit of oil, and see how it works. Then use more. Place a piece of newspaper under the machine while you work.

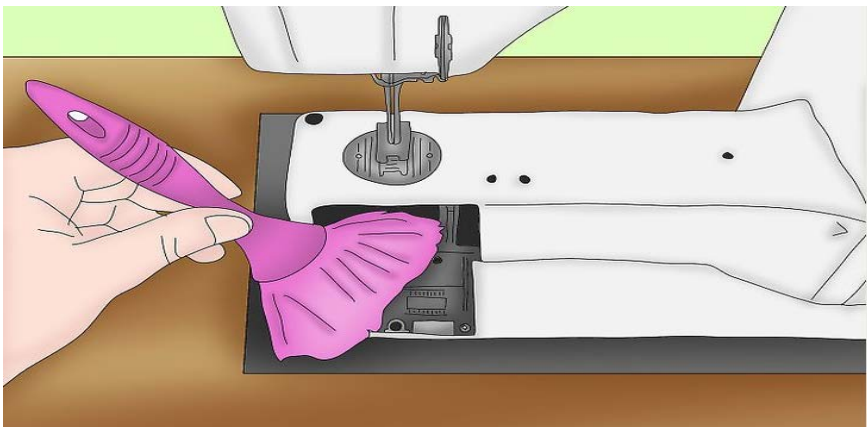
- Oil small areas at a time. You should take apart small areas of the machine piece-by-piece to oil them. Study the instructional manual drawings first so that you understand the function and name of each part.
- Disassemble the parts following the instructions in your manual. You will want to follow a process of cleaning the piece, brushing it out, and then lubricating each area.
- After you finish with each area of the sewing machine, you will want to put it back together, and then move on to the next part. Replace needles frequently. You will probably want to do this with each new project.





3. Prepare the machine for cleaning: You should clean the machine before you oil it. First, turn off the machine and unplug it.

- Remove all of the extra pieces of the machine that will get in the way of a thorough cleaning. For example, remove thread, bobbin cases, plates, and the presser foot.
- Remove the stitch plate. If your machine has a bobbin hook, you should remove it because lint could be collected there. Remove the machine's needle for safety purposes.



- A. Take a small, stiff lint brush. You should be able to brush away the lint with the stiff lint brush. Brush away the lint that you can. Sometimes these small lint brushes and other cleaning materials will come with the sewing machine.
- To reach pieces of lint that is hard to sweep away because they are compacted, try using tweezers to remove them. It's essential that you thoroughly clean your machine before you apply the oil.
  - Try using a soft cloth to wipe away any lint or residue on the bobbin hook. Some people also use clean mascara brushes or pipe cleaners for this process.
- B. Use compressed air. You could clean parts of the machine with a can of compressed air. There are some cautions necessary with using compressed air, though.
- The problem with canned air is that it could blow lint deeper in the machine. To reduce this problem, hold the nozzle at least 4 inches (10.2 cm) away from the machine part, and spray air at an angle into the machine so it blows the lint out of the machine instead of into it.



- Use the air to clean the bobbin case area and the bobbin case itself. This is the area where the bobbin loads up. Stray dust should fall out.<sup>[3]</sup> Use the air to clean the bobbin case also.
- Clean under the needle plate also. You will have to unscrew the needle plate. Remove the plate. You will see dust inside of it. Spray the area with the compressed air. Clean any other parts as instructed by your sewing machine manual. Clean under the needle plate also. You will have to unscrew the needle plate. Remove the plate. You will see dust inside of it. Spray the area with the compressed air. Clean any other parts as instructed by your sewing machine manual.





## Oiling the Machine

### 1. Buy sewing machines oil



- Your sewing machine may have come with a bottle of oil when you purchased it from the dealer or store.
- You can find this oil in sewing and fabric shops. This cannot be said enough. You cannot use any other oil than the oil recommended in your owner's manual.

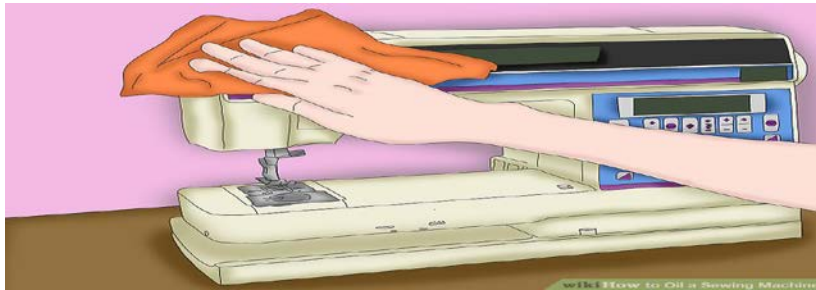


Put drops of oil into sewing machine parts. You should only need a small amount of oil. Your owner's manual will tell you where to drop it in the machine. It only takes a couple of drops.



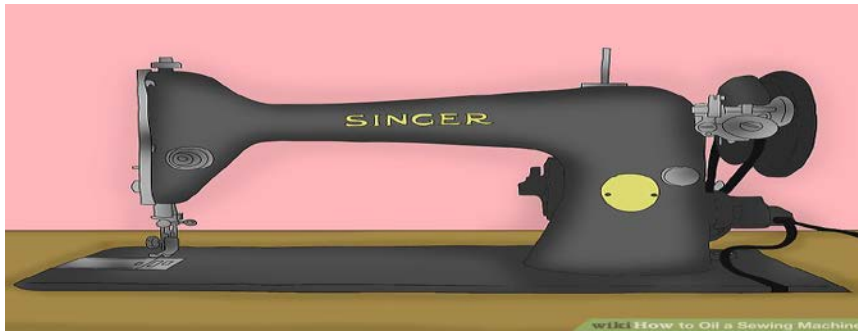


- Generally, you will be told to squeeze a few drops of oil on the housing unit that the bobbin case sits in.
- Most machines want you to oil the shuttle hook (which is the thing that spins inside the bobbin casing). Often you will be told to drop oil inside the hook race and the housing of the sewing machine. That's the silver ring that the bobbin hook fits into. Your machine will perform better and be quieter if you drop oil here because the two pieces rub together.
- You may also be instructed to put a drop of oil on the outer ring of the bobbin hook. This is where it slides along the hook race.



Wipe away excess oil. You could leave a piece of fabric under the presser foot to soak up any excess oil. You don't want oil to stain your next project when you start stitching.

- Take a cloth, and wipe away excess oil. Otherwise, it could end up on your fabric and thread. Put your parts back together. Avoid oiling plastic parts.
- If you use too much oil, you can run muslin through the machine, and then wipe the exterior of the machine. Use a damp, soapy towel. Let it sit. That way the oil will collect. Then, do it again. You might need to do this a few times over the subsequent days until all of the extra oil is not in the machine.
- Test the machine. Before you start sewing a new project, make a few stitches on a piece of fabric you don't care about. You want to see if any excess oil remains. Screw the needle plate back into the sewing machine.



Oil a Singer sewing machine. Remove the needle plate. Turn the hand wheel towards yourself until the needle is fully raised and open the hinged front cover. Unscrew the needle plate screws. A screw driver will come with the machine.

- Clean the feed dog. Remove the bobbin. Use the brush supplied to clean the area. Remove the bobbin case. Snap the two hook retaining arms outwards. Remove the hook cover and the hook. Clean with a soft cloth.
- Lubricate the points in the instructional manual with 1-2 drops of sewing machine oil. Turn the hand wheel until the hook race is in the left position. Replace the hook. Replace the hook cover, and snap back the hook retaining arms. Insert the bobbin case and bobbin and replace the stitch plate.



<b>Self-Check -1</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Note:** Satisfactory rating - 3 points

Unsatisfactory - below 3 points

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Short Answer Questions**



## Information Sheet-2

## set-up Machine

### Introduction

Getting a new machine can be an exciting time for a crafter who is looking for ways to expand their sewing skills. What you may find once it is time to take the machine out of the box is that learning how to set up a machine is a lot more intimidating than you expected. This is the point where you have to start making decisions about machine designs, which thread to use, and what material is best. The process of sewing machine is automated, but the choices you make prior to the actual sewing machine process will determine how successful you are at your new craft.

Get to know your industrial sewing Machine

There are many brands and models of sewing machines and each differs to some degree. If your machine is brand new and comes with a guide, this is a good place to start with setting it up. It will let you know which foot to use for the sewing and how to go about loading designed fabric to the machine.

There are many YouTube videos demonstrating the setup and use of a number of the most popular sewing machines sold and used today. For many, seeing a visual demonstration makes it much easier to understand the different parts of the machine and how to use them. It's also a good way to learn how to thread the machine; often one of the most complicated feats when using a new sewing machine of any kind!

### Setting Up your Sewing Machine

**Place the machine on a sturdy table, desk, counter, or sewing cabinet in front of you.** Sit in a chair that is a comfortable height for the height of the table. Arrange the machine so that the needle end is on your left and the body of the machine is on the right. You will be checking a couple of things first and getting to know the machine a bit, so don't plug it in just yet.

**Install a needle securely.** Needles have a flat side, so they can only go one way, usually with the flat side toward the back. There is a groove down one side of the needle, generally opposite the flat side of the shank-this groove must be facing the direction from which the needle is threaded when installing the needle (the thread rides in this groove while going up and down through the fabric.) Insert a needle all the way into the post and



tighten the thumbscrew securely. If you are still having trouble, refer to your machines manual.

**Wind and insert the bobbin.** A machine uses two thread sources, a top thread and a lower thread, stored on a bobbin. To wind the bobbin, place the bobbin spool on the bobbin winder on the top. Follow the guides, and wrap the thread from the thread spool around the guide and to the bobbin.<sup>[4]</sup> Turn the bobbin winder on, and wait for it to stop automatically when the bobbin is full.

- When the bobbin has been wound, place it in the bobbin cage below the needle on the lower half of the sewing machine. Sometimes the bobbin simply drops in (the bobbin case is built in). In this case it is important to pass the thread through a small notch at the front of the case and then pulled to the left. Leave the end of the thread outside. It will need to be brought up through the hole in the needle plate after you have threaded the top thread.
- Follow the link above for detailed instructions on winding and inserting a bobbin

**Thread the sewing machine.** The spool of thread resides on the top of the sewing machine, but must be unwound and attached to the needle. To do this, take the thread and pull it through the thread guide at the top, and then down and around the take up lever. There should be small numbers and arrows printed on the machine showing the way in which to thread the machine.

- You may also be able to follow the guides printed on your machine.
- Usually, the thread follows this general pattern: "left, down, up, down, into a hook, through the needle." Another way to know how to thread the machine is "Spool pin, tension, take-up lever, needle, using thread guides provided between these parts".<sup>[5]</sup>
- The needle might be threaded from the left, the right, or from front to back. If it is already threaded, that is a clue to the direction; if not, the last thread guide before the needle, is located nearest to the direction from which you must thread the needle.

**Get both threads out.** Hold the needle thread taut, and towards you in your left hand. With your right hand, make one complete needle down/up revolution by turning the hand wheel toward you. Now pull up on the needle thread that you are still holding with your left hand. The bobbin thread was caught when the threaded needle went down and up and is now looped over the needle thread. Pull on one side of the loop to bring up the bobbin thread tail, or just release the needle thread and pass a pair of scissors between the presser foot and



plate to pull the looped bobbin thread out. You should now have the ends of two threads, one from the needle and one coming up from below from the bobbin.

**Plug the machine in and turn it on.** Many sewing machines have a built-in light, which is often a good way to tell whether there is power to the machine. The power switch will usually be on the right side or back of the machine, if there is one. Some machines don't have a separate switch, in which case they're turned on as soon as they're plugged in.<sup>[6]</sup>

- Plug the pedal into the machine, too. Place the pedal in a comfortable spot under your feet.

**Wind and insert the bobbin.** A machine uses two thread sources, a top thread and a lower thread, stored on a bobbin. To wind the bobbin, place the bobbin spool on the bobbin winder on the top. Follow the guides, and wrap the thread from the thread spool around the guide and to the bobbin.<sup>[4]</sup> Turn the bobbin winder on, and wait for it to stop automatically when the bobbin is full.

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<https://www.wikihow.com/Use-a-Sewing-Machine>

### **The invention of the mechanical-digital position indicator**

SIKO is the inventor of the SIKO counter and a global market leader in the field of **spindle position indicators** and **hand wheels** with position indicators. As a consistent further development, SIKO is transforming the mechanical position indicators and hand wheels that are so flexible in use into modern-day generations of programmable electronic spindle indicators that are also compatible with bus-controlled use.

### **Wide array of position indicators for industry and mechanical engineering applications**

Position Line is a tried-and-tested product family that has grown to accommodate the needs of users. The SIKO position sensors are used in a wide range of different applications, for example format adjustment on packaging machines, gage positioning in paper-processing machines and tool positioning on woodworking or metalworking machines. Other typical



areas in which the SIKO position indicators can be used include reproducible process settings, work piece positioning for special machine construction or format adjustments on glass working machines.

#### **Mechanical position indicators**

One special aspect is the mechanical **control knobs**, which combine the miniaturized hand wheel technology with the gear-supported, mechanical digital position indicators in orange. These controls can be operated in any kind of installation situation thanks to the affixing system, which is based on a torque support.

#### **Electronic position indicators**

For automation, the electronic spindle positioning systems from SIKO offer additional benefits compared with mechanical position indicators. Parameters such as spindle pitch, count direction or decimal points are freely programmable. Depending on the model, the position values can be transferred to a control unit via an interface for further processing.

#### **Fieldbus and Ethernet communication**

Integration in standardized industrial fieldbus systems or Ethernet networks such as Profibus-DP, Profinet-IO, EtherCAT, Ethernet/IP or CANopen is possible with the help of interface converters. The SIKO spindle position indicators, setpoint displays and linear sensors for slide adjustments are then a key component of monitored format adjustment to raise the efficiency of production machines.

#### **Clamping plates for arresting position indicators**

Mechanical and pneumatic **clamping plates** round off the SIKO Position Line portfolio. They serve to lock a spindle in its position once it has been positioned correctly, thus preventing any unwanted shifting during the production process.

Comment [g1]:



<b>Self-Check -2</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Note: Satisfactory rating - 3 points**

**Unsatisfactory - below 3 points**

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Short Answer Questions**





Information Sheet-3	Adjust and thread Machine
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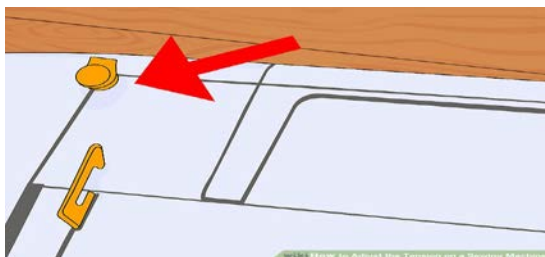
## Introduction

To adjusting and threading machine is having proper tension on your sewing machine is crucial because it ensures your stitching will be consistent and look the same on both sides. But, as important as correct tension is, even well versed sewers avoid the tension dials on their sewing machines. Adjusting the tension on a sewing machine can seem like a daunting task, however once you grasp a few basic concepts, there's actually nothing very mysterious about setting and adjusting thread tensions on your sewing machine, whatever its make or model.

### Part 1 Understanding Your Machine



1. Find the thread guides. The thread guides are the metal devices that help regulate tension. They are various loops that you run the thread through before looping it into your needle. They keep the thread from getting tangled and distribute the tension evenly from the spool to your fabric.

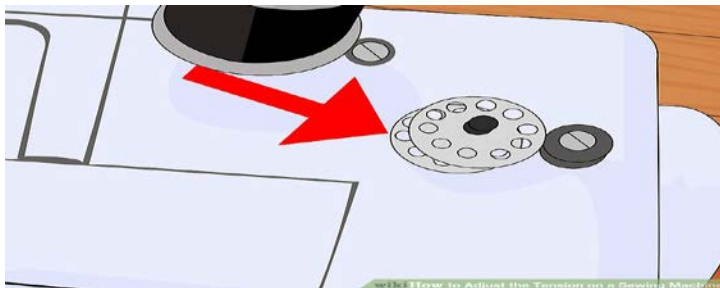


2. Find the tension discs and regulator. The tension discs and tension regulator together are called the tension assembly. The tension discs squeeze the thread as it passes between them, while the tension regulator controls the amount of



pressure on the discs. The tension regulator is elementary: when adjusted to a higher number (turned clockwise), the discs move closer together, increasing the pressure. Turned to a lower number (counterclockwise), the discs move apart, decreasing pressure.

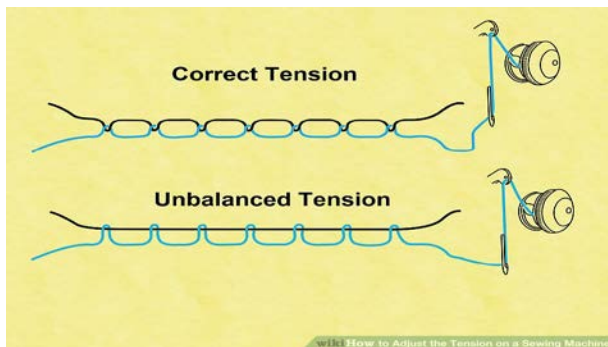
- On older machines there are only two tension discs, controlled by a screw or knob. On newer models there are three discs controlled by a dial or keypad on the front of the machine.
- Unless you have a newer machine that makes automatic upper-tension adjustments, using a thicker thread without resetting the dial will increase the pressure and cause the upper thread flow to decrease.



3. Find the bobbin. The flat bobbin-case spring exerts pressure on the thread as it comes out of the bobbin case. You can either have a loading drop in bobbin (you won't have a bobbin case), or bottom loading with a bobbin case in a compartment below the needle. The amount of pressure on the bobbin is regulated by a small screw at the rear of the spring.

Both the spring and screw are easy to locate when the machine has a separate bobbin case. When the machine has a drop-in bobbin with a built-in bobbin case, locating the tension screw can be more challenging but a little bit of searching will prove it's there.

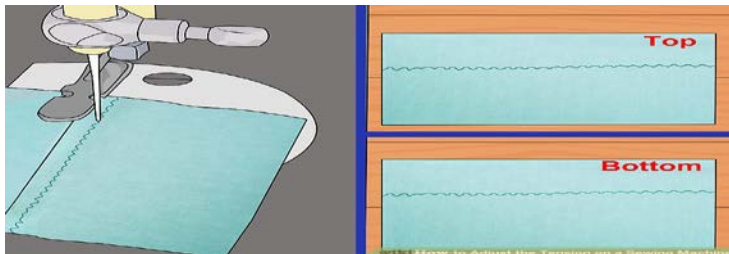
In either case, to increase the resistance, use a small screwdriver to turn the screw clockwise (to a higher number) or counterclockwise (to a lower number). Turn the screw in small increments and never more than a quarter-turn between tests.



Understand tension. Tension is what keeps your bottom and top stitches in equal tension with one another. In other words, it is what keeps your front and back stitches looking the same. Both the top and bottom tension must work together in order to create consistent stitching. If your top and bottom stitches aren't even, it may be due to your tension not being right on the top or bottom.

Most domestic sewing machines are of the "lockstitch" variety. That means an upper thread and a lower thread "lock" together. When they don't "lock" together properly, you could have an issue with the tension.

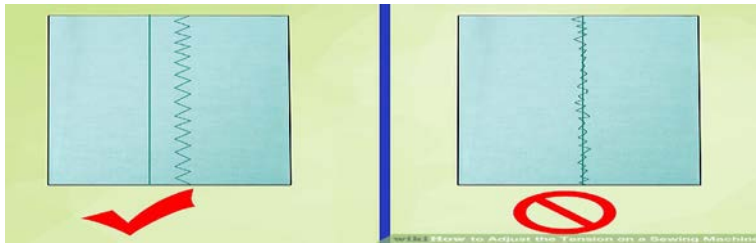
## Part 2 Ensuring Tension is Your Problem



Sew a test seam. Using a small swatch of fabric, run a couple of seams down the middle of the square. Observe the top and bottom surface of the seams, using a magnifying glass if need be.

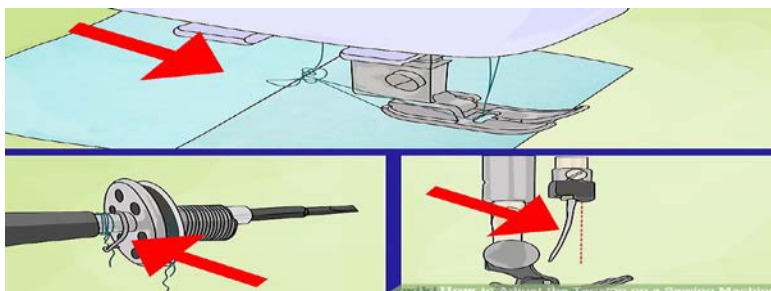
Remember you want your stitches to look even on both sides of your fabric. If the thread is so tight it's causing the fabric to bunch around it or if the stitching is loose and falling apart, you might have an issue with the tension.

If your stitches look perfect and your sewing machine is sewing wonderfully, don't touch your tension knobs



- Identify your problem. You've sewn a test seam or two and you've inspected the seams. 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.
- An easy way to think of the thread balance is tug of war. You have your top thread and your bobbin thread pulling on each side. If they're both pulling equally, the seam will be even and consistent. If one side is pulling too much, the thread from the other side will be visible.

If the bobbin thread shows on the top side of the seam and the top thread is straight, the upper tension is too tight. If top thread shows on the underside of the seam and the lower thread is straight, the upper tension is too loose.



Inspect your machine. There are multiple problems that could be causing issues with your sewing machine that aren't the tension. Make sure to check these possible causes before adjusting your tension knobs.

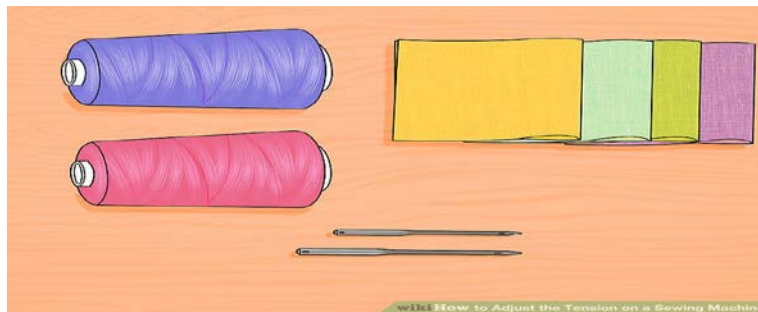
Incorrectly threaded machine: Is all of the thread running through the thread guides?

Is thread unwinding freely from the spool or is it catching? Is the bobbin inserted correctly?

- Dirty machine: Thread ends can get lodged between tension discs, around the bobbin case, and under the throat plate. This can cause an increase in resistance and restrict the thread flow. Check all of these areas to ensure they're clear.



- Damaged machine parts: Bent needles and bobbins and rough or damaged surfaces on the needle eyes, thread guides, tension discs, take-up lever, throat plate, presser foot, bobbin case, or in the bobbin area can all cause problems. Give your machine a general inspection and remember that even the tiniest damage can distort tension

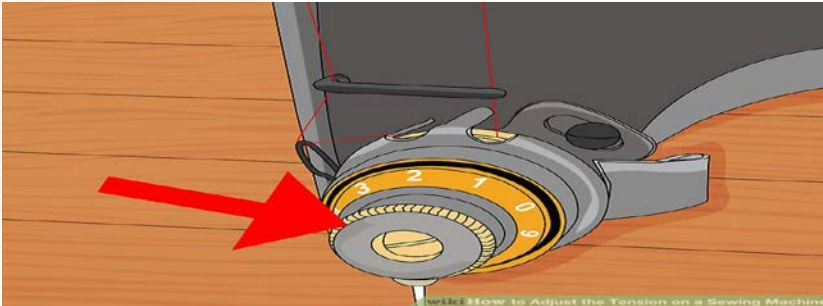


Pay attention to your needles, threads, and fabrics. Different thread sizes on the top and in the bobbin can throw off your basic tension settings. A needle that is too large or too small can also unbalance your stitches. If you're getting puckers on a lightweight fabric, try shortening the stitch length to 1.75mm. All of these small details can wreak havoc on your project so make sure you're detail-oriented when setting up your machine for a project.

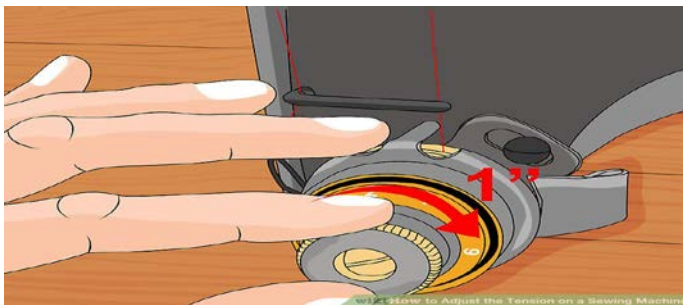
Polyester thread is a true all-purpose thread, and it's a good choice for most sewing projects. Wool thread, on the other hand, is very thick and if you were to use it, you'd have to adjust your tension.

Common heavy duty fabrics include canvas and burlap while cotton and polyester are common fabrics with a standard weight. If you're switching between heavy fabrics and something of a lighter weight, you'd have to adjust your tension to keep the stitches even. Needles come in various sizes for different purposes. There are thicker needles designed for denim that won't break when they're being used and thin needles that won't damage thin, delicate fabrics. When buying needles, you can consult someone in the store to help you find the best option for your fabric.

### Part 3 Adjusting the Tension



1. Find your tension regulating dial. It will be in a different place on every machine so if you're not sure which knob it is, you can check your sewing machine manual. If you don't have a manual, it is the knob with numbers on it that doesn't change your type or stitches or length.



Adjust your top tension if it's too loose. To increase your top tension if it's too loose, turn your knob so that the numbers are increasing. Try  $\frac{1}{2}$  to 1 number lower, then test the stitches on a piece of scrap fabric. Continue until it looks even on both sides and you can no longer see the bottom thread on the top

If you are unable to get it completely even, proceed to adjusting the bobbin tension





Adjust your top tension if it's too tight. To decrease your top tension if it is too tight, turn your knob so the numbers are decreasing. Try  $\frac{1}{2}$  to 1 number lower, then test the stitches on a piece of scrap fabric. Continue until it looks even on both sides and you can no longer see the bottom thread on the top

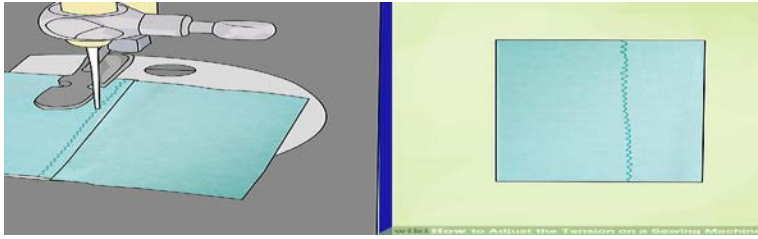
If you are unable to get it completely even, proceed to adjusting the bobbin tension



Adjust your bobbin tension. You should always try to adjust your top tension first because you shouldn't need to adjust your bobbin tension unless you are using a heavier or lighter thread than usual. If you've done that and still need to adjust the lower thread, locate your bobbin in either the top loading drop in bobbin (you won't have a bobbin case), or bottom loading with a bobbin case.

- With a bottom loading bobbin, an easy way to test the tension is to take the thread hanging from your bobbin case in your hand. If it doesn't unwind at all, your tension is too tight and needs to be loosened. If the thread unwinds with no effort, your tension is too loose and you'll need to tighten it. You want to hold the thread and have it drop just a few inches. When that happens, your tension is perfect.<sup>[12]</sup>
- Use a tiny screwdriver and turn the screw on the side of the bobbin case by  $\frac{1}{4}$  turn. Turn it right to increase the tension and left to decrease it. Test the tension again. Repeat until the thread only drops a few inches.

Similarly, with a top loading bobbin, you use a screwdriver and turn the screw by  $\frac{1}{4}$  turn, testing your tension between each adjustment with a test seam on scrap fabric. The good old righty tightly lefty loosely applies in this situation as well



Test your tension until its right. Keep sewing test patches until your tension is right and you've got even stitches on both sides. Once you're happy with the tension, finish setting yourself up, and start your project!





<b>Self-Check –3</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Note: Satisfactory rating - 5 points**

**Unsatisfactory - below 5 points**

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Short Answer Questions**



<b>Information Sheet-4</b>	<b>Control Speed of machine and work handling</b>
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### **Introduction**

Often industrial sewing machine operators may want to reduce or increase the speed of their machine depending on user preference or a change in fabric being worked on. Reducing the speed of a machine allows more precision for working on intricate detail as well as for working with heavier weight fabrics such as canvas. Having slower speed is important if you want to work on heavier materials so that you prevent breaking needles and cotton. Increasing the speed of a machine is often actioned because operators are working with lighter weight fabrics and want a fast output. High speeds are often associated with the clothing or fashion industries where the same pattern is being completed continuously. The great thing about industrial sewing machines is that you can make small adjustments to achieve different speeds. We have created a few videos that identify different options for changing the speed of your machine. To make your sewing machine run slower, you can start with changing the pulley size on your motor. The smaller the pulley equals the slower the speed.

If this is still not slow enough you may wish to look at your motor. There is normally two different types of motors; 2850rpm or 1425rpm. By switching from 2850rpm to 1425rpm will deliver a further 50% reduction in speed. Lastly, a great option can be changing your clutch motor to a servo drive motor. A servo drive motor will give you complete flexibility to easily switch your machine between high speed and low speed simply by turning a dial. The servo motor also delivers added benefits such as power savings, silent operation and electronic needle positioning.





What to do when you press the foot control pedal but the sewing machine does not work?  
One of the reasons could be a foot speed controller failure

If you learn how works the foot control pedal your sewing machine you can find out about its possible breakdowns.

But first I must to warn you that it's not recommended to disassemble the pedal yourself. It's dangerous and only the specialist can do it. But if you look inside the foot pedal on photos you can best understand how woks it and to troubleshoot many problems.



Note: Before removing the bottom cover of foot controller, it is necessary to disconnect the pedal from the network.

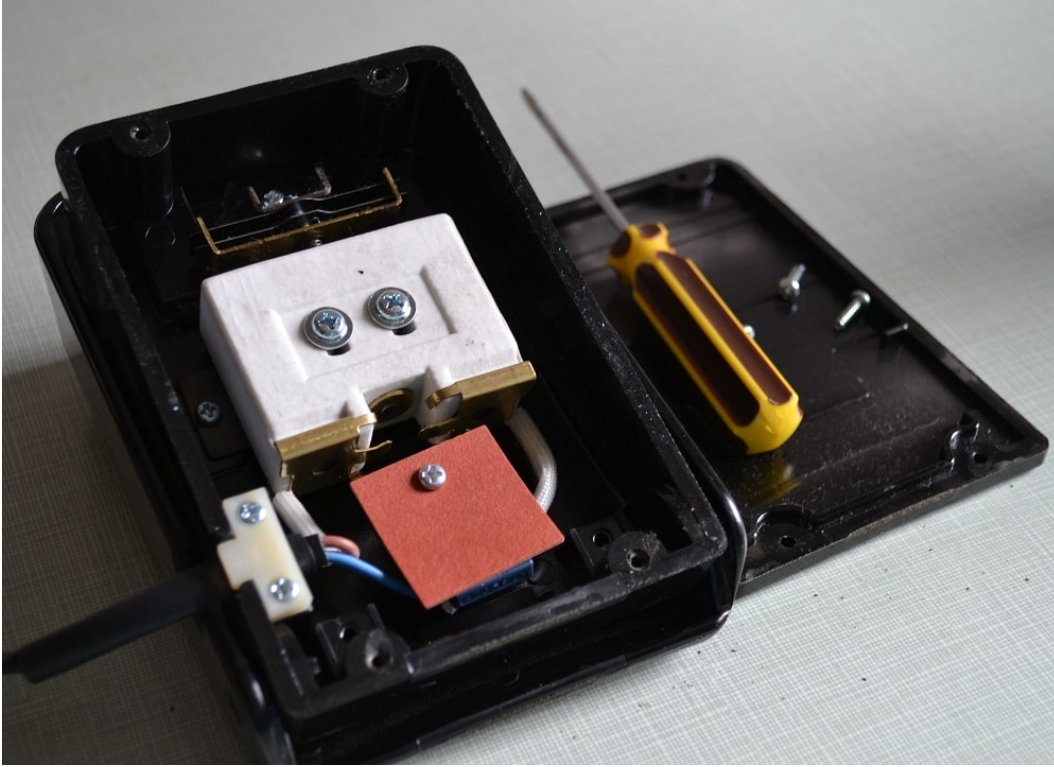


## What is inside the foot speed controller



The screws holding this cover are located under the gaskets which are glued to the bottom of the cover.

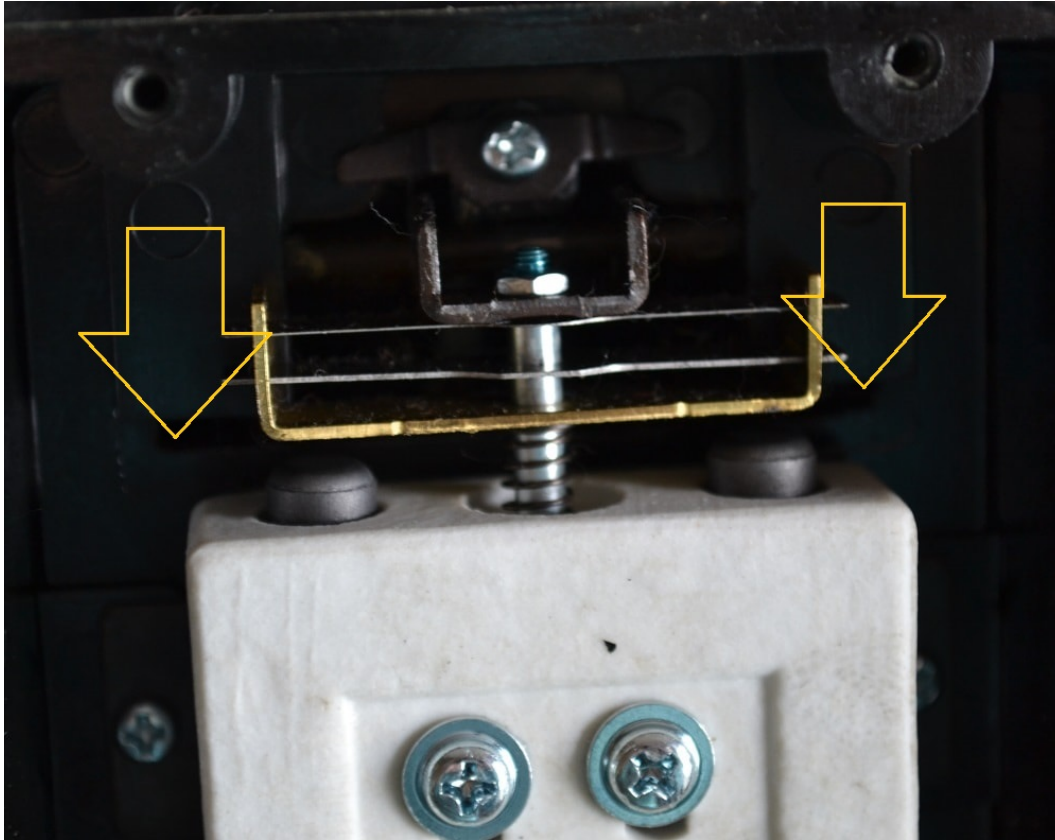
Note: Never open the electrical appliances themselves



Now let's see what is inside the foot speed controller of the sewing machine.

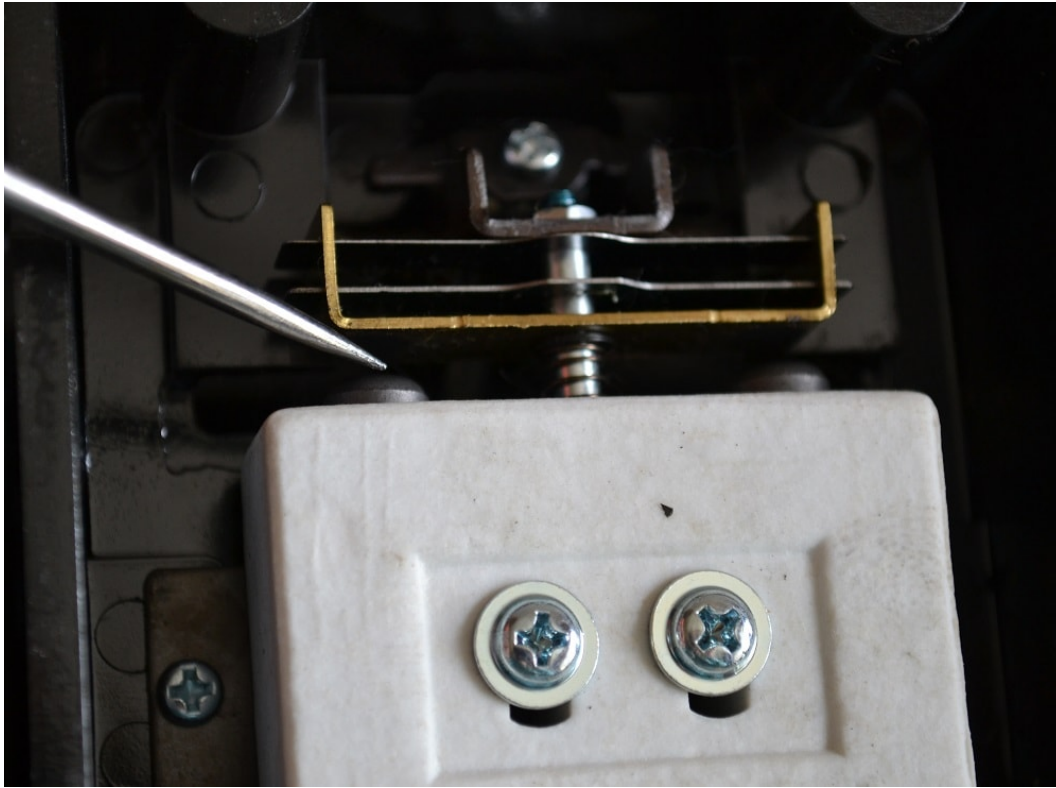


### The rheostat having ceramic housing

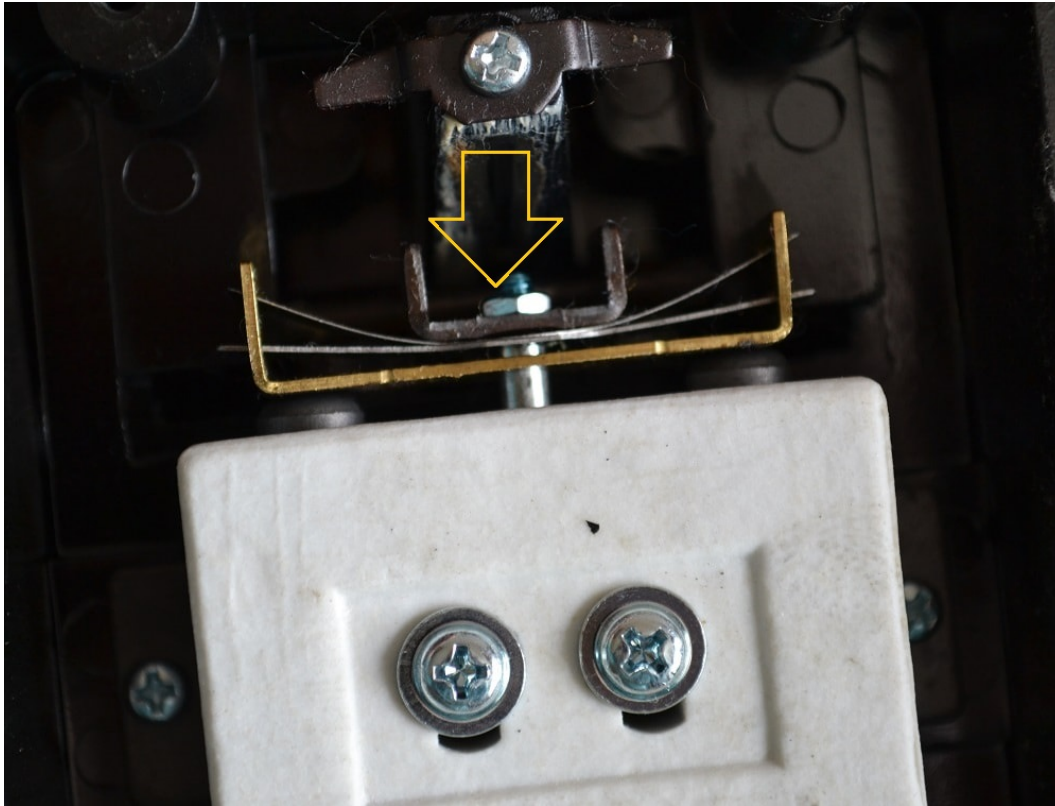


On this photo you see rheostat having ceramic housing. When you press the pedal this plate pressed to both graphite pins. Graphite plates laying into rheostat are compressed. As a result, the electrical circuit closes and the electric motor of sewing machine starts to work.

The more pedal is pressed then denser depressed the graphite plates together. As a result, the rheostat passes more the electric current and sewing machine begin to run quicker.



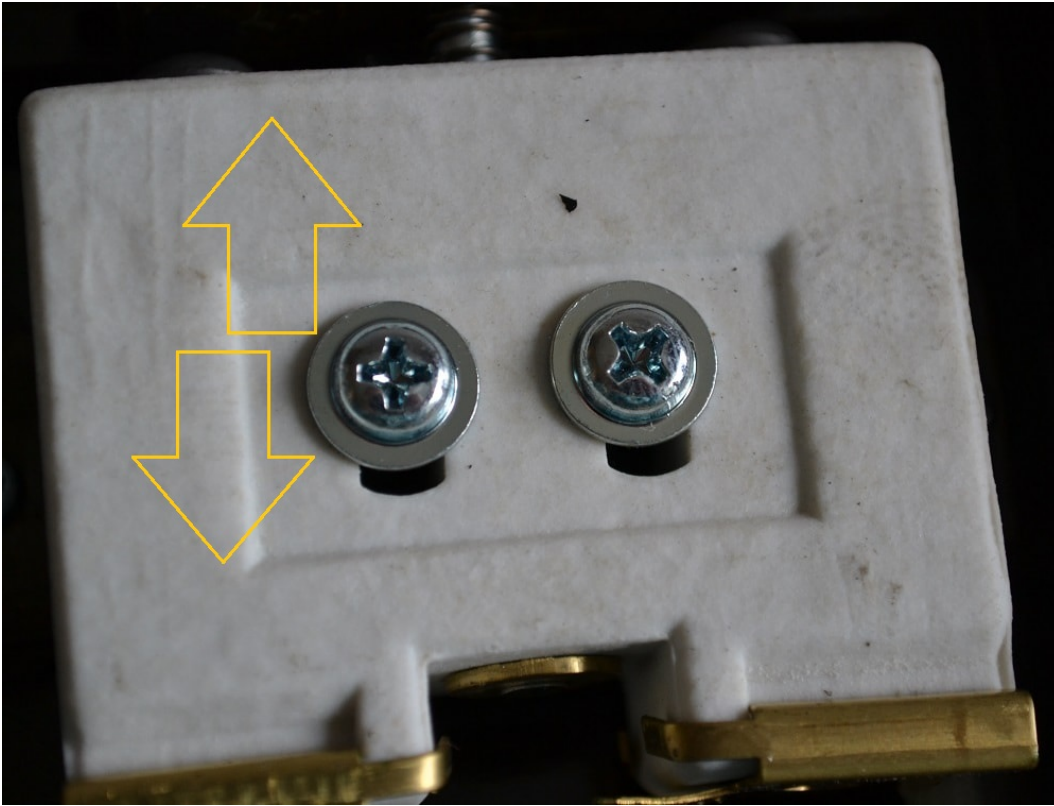
The surface of the copper plate contacting the graphite bushing must be clean. It should not have any burned-out areas or oxides.



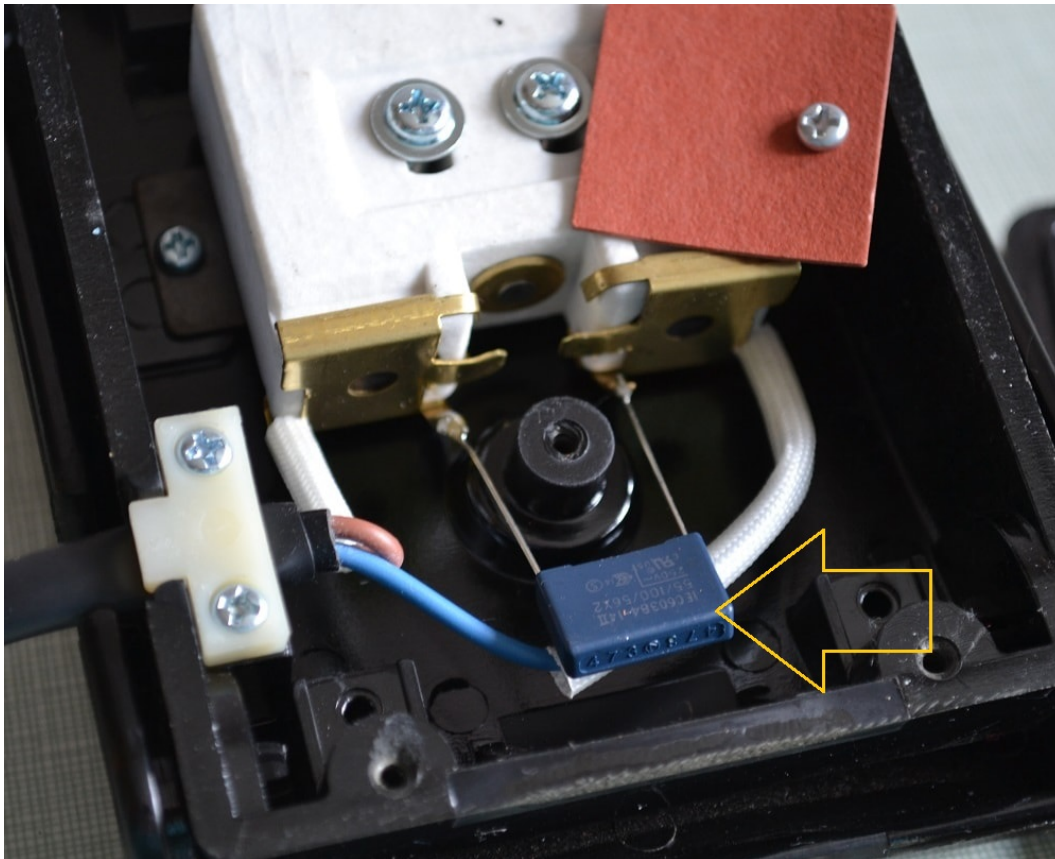
If you need a great effort to make the sewing machine works, check the gap size between the plate and graphite bushings.

Note: The copper plate must not touch the graphite bushings in a loose fit (without depressing the pedal). In addition to this, it should evenly touch both bushings and evenly pressing them.

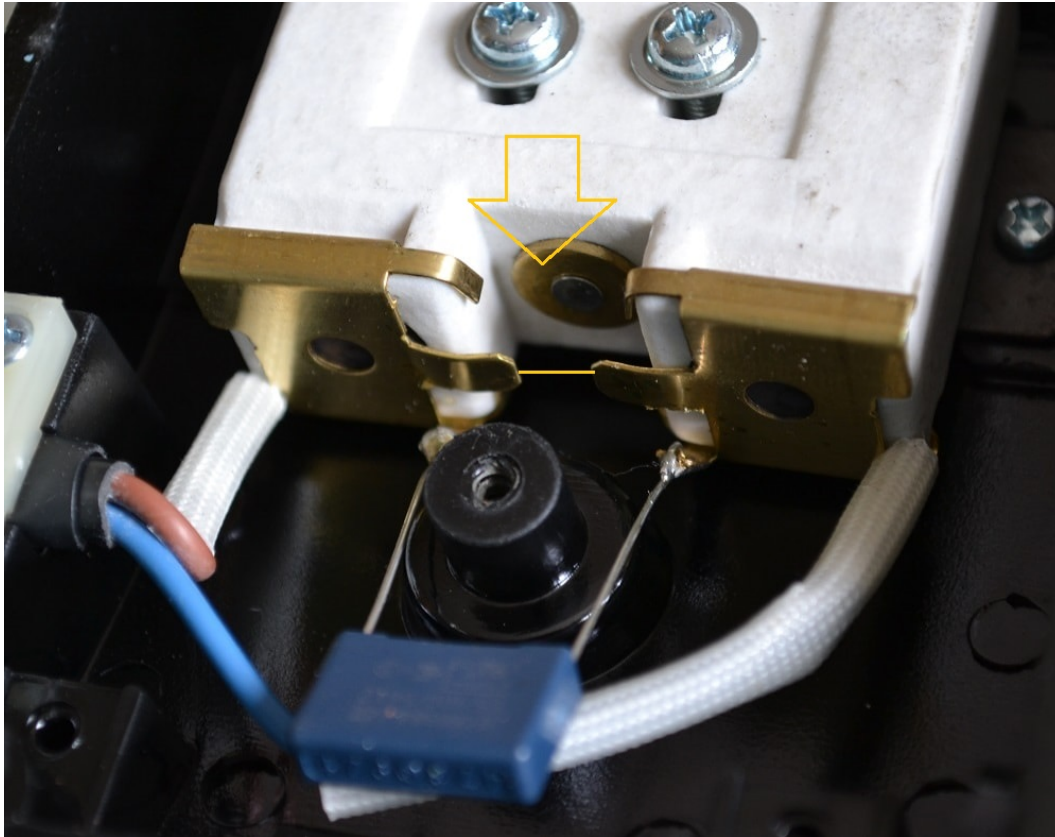




The gap size between the metal plate and graphite bushings can be changed by loosening these screws. Then slide the rheostat case in the desired direction.

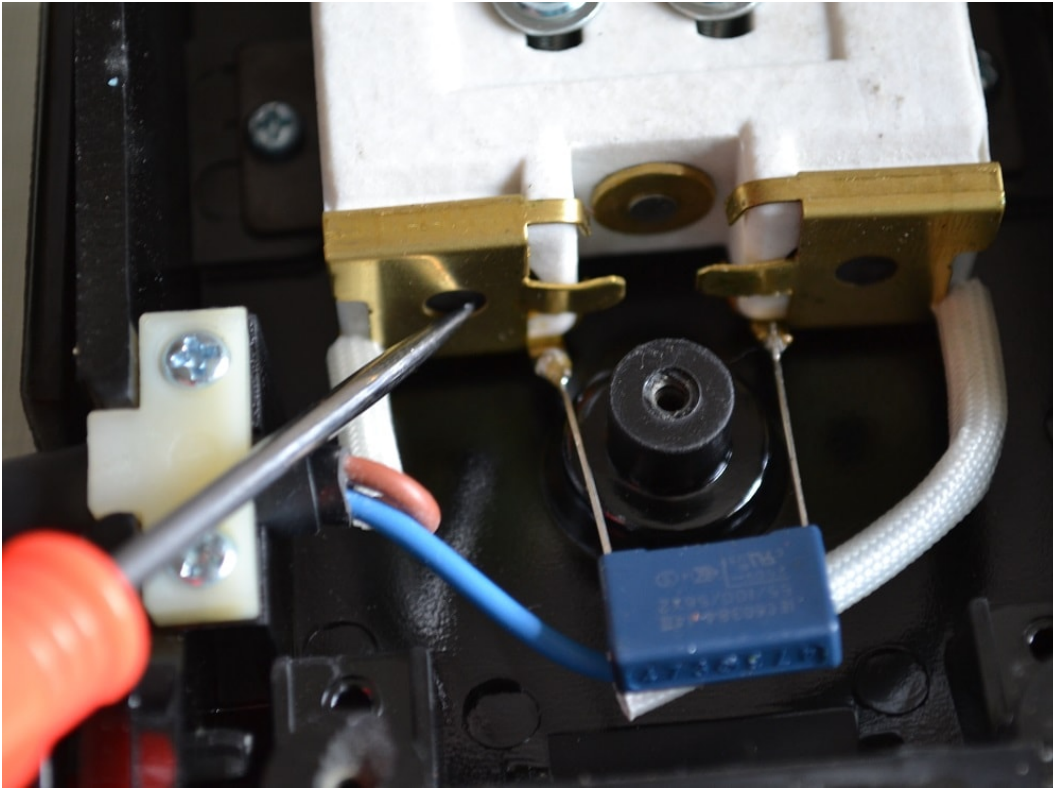


On this photo shows one part of the foot speed controller that does not affect the operation of the pedal. This is an electric capacitor. But this detail is necessary to eliminate an interference from electrical impulses.



Now let's consider the case when the sewing machine does not can to regulate its speed correctly. The case when the sewing machine starts to work if you press the pedal to the end only, and at the highest speed.

Look at this photo. When you press the pedal to the end these contacts are closed with metal pin having wide washer. This copper bushing (pointer with arrow) goes down to the petals and closes the electric circuit "to the straight line" (without resistor). The sewing machine motor starts to rotate at maximum speed.



Now let's see what is inside the ceramic case. If you remove these copper plates, be prepared to find a lot of thin graphite washers (see the photo below)

<https://youtu.be/QVE9P9-X0FA>

If the sewing machine has become slower to work, or works with jerks. One of the reasons for this is that the speed controller is faulty.



## The graphite washers



Never do this (do not disassemble it) because graphite washers are very fragile and can easily break.

Tips: If you are sure that the cause of the malfunction is inside this enclosure, it is better to buy a new pedal.

After years of work the surfaces of these plates are burned out or covered by a touch, which prevents good contact between them. In some circumstances you can repair the pedal if you can remove these carbon deposits.



## Foot controller troubleshooting



The above reasons of breaking a pedal do not happen often and they cannot be fixed at home not specialists. You will need to contact the service center to troubleshoot them. But there are problems of controller that are easy to avoid if you know about them in advance.

Often the cause of the malfunction of the foot control pedal is electrical wiring. Inspect carefully all the contacts, starting from the resistor and to the plug located on the body of the sewing machine.



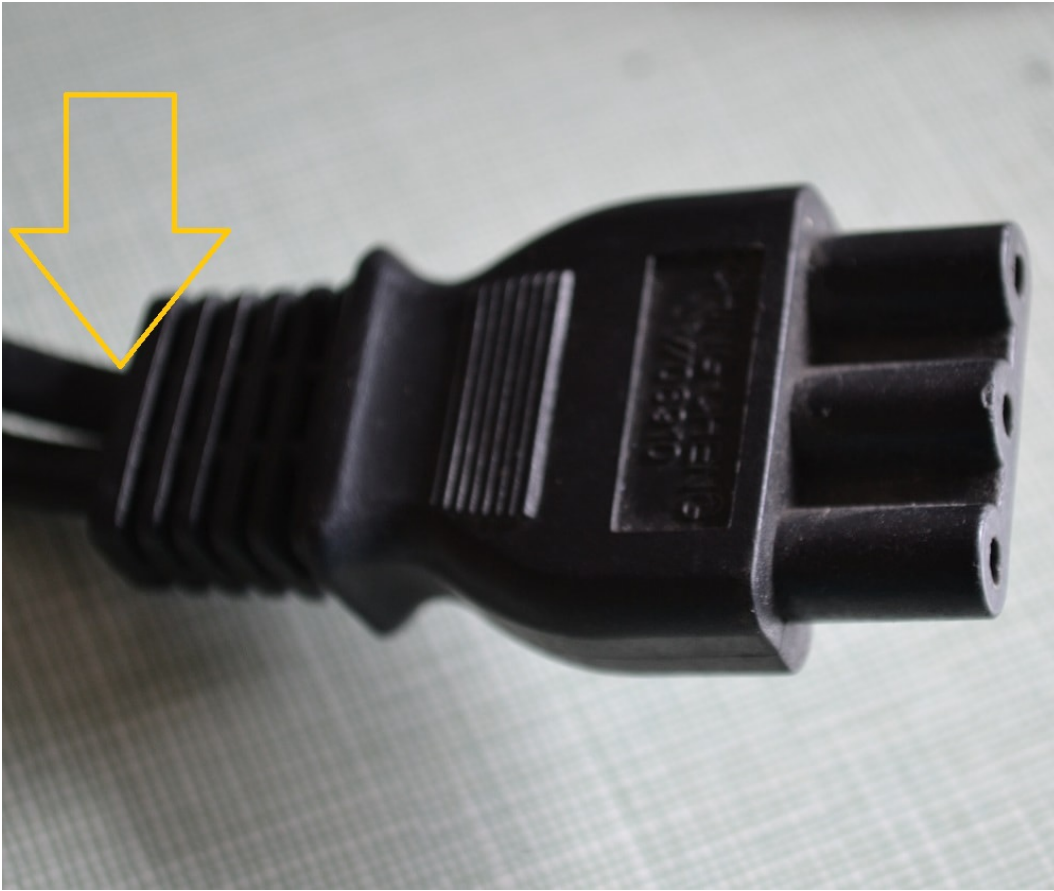
Note: The wire in the twisted and twisted sections of the wiring may break off. Make sure that you do not have such segments on the wiring.

In addition, check that there are no with bare wires.



Occasionally, the wiring is disconnected from the electric outlet or from the plug on the body of the sewing machine.





If the wiring in this plug constantly moves and folded, a breakdown may occur into it also. A sign of such a breakdown: the electric motor of the sewing machine works intermittently.



The surfaces of the metal parts of the electrical socket and plugs must be clean. They should not have rusty and oxidized areas.



Now you know how works the foot speed controller. But you should know, that there are other types of foot control pedals, having a different working principle.

English isn't my first language, so please excuse any mistakes and help correct them.  
E-mail for sending is on the contact page.



<b>Self-Check -4</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Note: Satisfactory rating - 5 points**

**Unsatisfactory - below 5 points**

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Short Answer Questions**



## Information Sheet-5

## Identify and repair Minor machine problem or fault

### Introduction

#### Sewing Machine Manual

The machine's manual should always be reviewed for troubleshooting steps when problems arise. It is a necessary source for information regarding machine maintenance and proper settings. While locating the manual could certainly be a problem for some users, all is not lost. Sewing machine manuals can be found and purchased online at eBay or by contacting the manufacturer. It's best to keep the manual near the machine along with other common supplies such as needles and scissors.

#### Common Sewing Machine Problems

- ✚ Puckering
- ✚ Uneven stitch
- ✚ Loose threads
- ✚ Skipping stitch

With the manual on hand along with the following tips, many of the most common sewing problems can be resolved.

#### 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.

##### Threading the Machine

Check that the machine is threaded properly according to the manual. When threading the machine, remember to always do so with the presser foot up, which releases the tension. Once threaded, putting the presser foot down will apply tension to the thread.

##### Sewing Machine Needle

Be sure that the needle is locked and facing the correct direction for the machine. If it's not, the thread will not be picked up by the hook when sewing. The flat side of the needle shank faces away from the bobbin insertion point in most machines. Blunt or damaged needles can contribute to a number of sewing problems, so don't wait until the needle is broken to change it.



### Fabric Not Feeding or Is Jamming

Both the presser foot and feed dog may have raise and lower settings. Without enough pressure on the fabric from the presser foot, the feed dog cannot do its job. On the other hand, having the presser foot too low may cause too much pressure or prevent the fabric from feeding through, causing jams. Check that the feed dog is in its raised position when sewing. If the feed dog seems to be jammed, it may be due to lint and debris.

### 2. Breaking Needles

The needle is often the easiest part of a sewing machine to change; that's fortunate because it is also the part most prone to wear. 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. Forcing the fabric rather than allowing the feed dog to do its job can bend or break the needle; a bent needle may hit the hook when sewing, which can lead to broken needles and damage to the hook.

Using the wrong size needle is often the culprit of a broken needle. Needle size should be relative to the thickness of the material being sewn. American needle sizes range from 8-19 while European sizes range from 60-120. Needles will often be listed with both sizes, such as 70/10. There are also specialty needles for fabrics such as leather and denim.

### 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. If the problem seems to be consistently reoccurring, it may be due to forcing the fabric. Sewers should allow the feed dog to pull the fabric and only use their hands to guide the fabric through the feed. When sewing knitted fabrics, using a stretch needle can help prevent skipped stitches.

### 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 looping problems that occur on the bottom side of the fabric are typically issues with the upper threading, not the bobbin threading. Looping or bunching that occurs on top of the fabric tends to a problem with the bobbin threading. For any thread issue, it's best to begin by checking that the machine is threaded properly according to the machine's specifications. If the machine was not threaded with the presser foot up, it will not have the needed tension



for sewing. Also check that there is no lint or debris in the area and that moving parts are oiled. Finally, check the needle for any damage.

#### Thread Breaking

Thread that continually breaks may be an issue with the quality of the thread or obstructions within the machine. Inexpensive, bargain threads typically shed more lint, contain knots, and break more often than good, quality threads. Lint and knots can obstruct the thread from feeding through the machine. Also check the path the thread travels through, including the bobbin and needle, is free from burrs, nicks, or any sharp points that may cause a break or snag. Polish these areas with sand paper or steel wool. If the spool itself seems to be jamming, try changing the direction from which the spool is unwinding. Some fine threads used for embroidery may be more prone to breakage; it is best to use a specified embroidery needle for these projects.

#### Tension Adjustments

Most sewing machines require very little altering of the tension settings or disks. However, if all other thread issues have been resolved but the problem is still reoccurring, not having proper tension may be the problem. Changing the tension can affect the timing of the machine as the pressure exerted on the upper thread and bobbin thread needs to be even; therefore, its best to review the machine's manual for tension specifications. Upper tension is user adjustable, but the setting should be in a medium range for most sewing projects. Tension problems with the bobbin threading are particularly intricate and should be repaired professionally. Using different color threads in the upper threading and bobbin is a good way to determine which area is having tension problems.

#### 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. Lint buildup will occur due to the constant use of fabric and thread. Clean lint and other debris out of the machine using a brush.

The machine should be oiled according the owner's manual. Only sewing machine oil should be used to lubricate moving parts. The oil prevents wear as well as rust. Run a test thread and fabric through the machine to remove excess oil.

Examine the machine for loose screws and tighten them. However, do not tighten hex screws as these screws often affect the timing and settings of the machine. If any of hex screws seem to be missing or out of order, the machine should be taken to a professional for



repairs.

Regular cleaning and maintenance can help protect the machine for future use, but if mechanical noises still continue, the machine should be examined by a professional repairman.

#### 6. Seams Do Not Look Professional

While not necessarily a problem with the machine, some might question why the seams they sew look more homemade than professional or why pattern pieces don't fit together. A number of factors could be the culprit here. If there are large holes in the stitches, the needle is too big for the fabric. Ironing or steaming the fabric before sewing is also a must for a professional-looking end product. To accurately sew seams, it is important to watch the seam guide rather than the needle. Using the guide will keep the seams consistent and balanced throughout the project, which will allow pattern pieces to properly fit together.

#### Finding Sewing Machine Parts on eBay

When problems arise with machine parts, needles, and thread, replacements can be found on eBay. From the eBay homepage, the Sewing & Fabric subcategory can be located by clicking on Home, Outdoors & Decor in the category menu and proceeding to the Crafts category. From here, users can browse or search for sewing machine needles, oil, and other parts and supplies as well as quality thread and fabric.

#### 2.5, monitoring procedures of Machine operation

Set up, adjust, and operate a cup seaming machine to cup seam knitted panels ... knitting machines; operators of sewing machines and/or automated process, repair knitting faults according to company procedures; monitor production for ...





<b>Self-Check -5</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Note:** Satisfactory rating - 5 points

**Unsatisfactory - below 5 points**

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Short Answer Questions**



<b>Information Sheet-6</b>	<b>Monitor machine operation</b>
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## **Introduction**

Sewing machine operators operate and monitor sewing machines to make, repair, darn and renovate textile, fur, synthetic or leather garments or embroider ornamental designs on garments or other materials. They operate button hole making and eyelet holing machines to cut holes, stitch around holes, stitch buttons and fix eyelets to garments.

## **Tasks and duties**

- Monitoring machine operations to detect problems such as defective stitching, breaks in thread or machine malfunctions
- Operating stitching machines to sew leather parts together for leather garments, handbags, gloves or similar items
- Tending semiautomatic sewing machines with multiple-sewing heads controlled by pattern chains that embroider various designs on garments
- Performing equipment maintenance tasks such as replacing needles
- Operating machines such as single or double needle serge's and flat-bed felling machines to automatically join, reinforce or decorate material or articles
- Operating fur sewing machines to join fur pelt strips to required size and shape and join pelts into garment sections or shells
- Attaching buttons, hooks, zippers, fasteners or other accessories to fabric, using feeding hoppers or clamp holders
- Operating or tending sewing machines to perform garment sewing operations such as joining, reinforcing, seaming or decorating garments or garment parts



<b>Self-Check -6</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Note:** Satisfactory rating - 5 points

Unsatisfactory - below 5 points

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Short Answer Questions**

**Operation Sheet 1****Prepare sewing machine for operation**

**Operation title:** Prepare sewing machine for operation

**Purpose:** Perfect machine stitching is easy to achieve if you set the machine properly. This involves threading the upper and lower parts of the sewing machine. The beginner in garment making must learn how to thread the head of the sewing machine as one of the first steps in becoming a competent operator.

Material equipment & tools needed

Quantity	Unit	Description
1	Unit	Lock stitch sewing machine
1	Unit	scissors
1	Cone/spool	thread

Condition for operation:

- To understand the type of sewing machine and how to operate each machine
- To have knowledge about the machine.
- To operate all type of machine the machine

**Procedure:**

**Threading the Machine**

Each part of the threading mechanism on the head of a sewing machine has a definite purpose in guiding the thread from the spool to the needle. The thread must pass through the various guides in a given order so that the machine will sew properly the formed stitches.

A. Order of threading in the upper part:

1. Spool Pin
2. Upper thread guide
3. Between metal disc of tension
4. Thread take up lever
5. Lower thread guide
6. Needle

Steps:

1. Put the spool of thread on the spool pin.
2. Bring the thread to the thread guide.
3. Pull the thread between the metal discs of the tension.



4. Bring the thread up to the thread take up lever and raise it as it goes.
5. Pull the thread down to the thread guide.
6. Pull it through the lower thread guide.
7. Thread the needle.

B. Threading the lower part;

Steps:

1. Remove the bobbin case by pulling on the bobbin case latch.
2. Remove the bobbin from the case and wind the thread.
3. Put the bobbin back to the bobbin case and pull the thread through the little slot at least 4 inches.
4. Be sure that you hear the case being locked upon inserting the bobbin case inside the shuttle.
5. Start the mechanism by rolling the balance wheel forward to get the thread of the bobbin through the needle.
6. Pull the upper and lower thread together by 4 inches.



**Precaution:** Before removing the bobbin case and placing it back to the machine, make sure that the needle is in its highest position

Evaluation criteria

Upper and lower threading done in correct sequence in 5 minutes

Thread passed through appropriate parts especially in between the tension discs.

Bobbin case does not turn when the machine is running

No needle breaks

Bobbin case and shuttle race not damaged



Operation Sheet 2	CONTENT-
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Procedures for -----

- Step 1-
- Step 2-
- Step 3-
- Step N

Operation Sheet-N	CONTENT-N
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Techniques for-----:

- Step 1-
- Step 2-
- Step 3-
- Step N

LAP Test	Practical Demonstration
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Name: \_\_\_\_\_ Date: \_\_\_\_\_

Time started: \_\_\_\_\_ Time finished: \_\_\_\_\_

**Instructions:** Given necessary templates, tools and materials you are required to perform the following tasks within --- hour.

- Task 1.
- Task 2.
- Task N.



## List of Reference Materials

- 1- BOOKS
- 2- WEB ADDRESSES (PUTTING LINKS)