सत्यमेव जयते

PARTICIPANT HANDBOOK

Apparel

Language: English

SOFTWARE APPLICATIONS IN PATTERN MAKING

N·S·D·C National Skill Development Corporation

Orion Edutech®
ISO 9001:2015 CERTIFIED
Funded Partner of NSDC

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Welcome Note

Dear Participant,

Welcome to the "Software Application in Pattern Making" training programme. After completion of the training, Participants would be able to:

- ✓ Walk, ride bicycles, drive vehicles, or use public conveyances in order to reach destinations to deliver messages or materials.
- ✓ Load vehicles with listed goods, ensuring goods are loaded correctly and taking precautions with hazardous goods.
- ✓ Unload and sort items collected along delivery routes.
- ✓ Receive messages or materials to be delivered, and information on recipients, such as names, addresses, telephone numbers, and delivery instructions, communicated via telephone, two-way radio, or in person.
- ✓ Plan and follow the most efficient routes for delivering goods.
- ✓ Deliver messages and items, such as newspapers, documents, and packages, between establishment departments, and to other establishments and private homes.
- ✓ Sort items to be delivered according to the delivery route
- ✓ Obtain signatures and payments, or arrange for recipients to make payments.
- ✓ Record information, such as items received and delivered and recipients' responses to messages.

Read each module, log your key learning, and attempt the worksheet questions in the end.

General Instructions to Trainee

1. Greet your instructor and the other participants when you enter the class.
2. Always be punctual for every class.
3. Be regular. Candidates who fall short of the required attendance will not be certified.
4. Inform your instructor if, for any reason, you need to miss class.
5. Pay attention to what your instructor is saying or showing.
6. If you do not understand something, put up your hand and seek clarification.
7. Make sure you do all the exercises at the end of each module in this book. It will help you understand the concepts better.
8. Practice any new skills you have learnt as many times as possible. Seek the help of your Trainer or co-participant for practice.
9. Take all necessary precautions, as instructed by your Trainer, while working with electricity and with tools.
10. Make sure you are neatly attired and presentable at all times.
11. Participate actively in all the activities, discussions and games during training.
12. Always take bath, wear clean clothes and comb your hair before you come to class.

The three most important words you must always remember and use in your daily conversation are PLEASE, THANK YOU and SORRY.

TABLE OF CONTENTS

(SOFTWARE APPLICATION IN PATTERN MAKING)

CHAPTER - 1

AN INTRODUCTION TO THE INDUSTRIAL SEWING MACHINE AND WORK AIDS

LEARNING OUTCOMES:

- Understanding the Sewing Machine and its parts.
- Learning about the Industrial Sewing Machine.
- Differentiating between the Industrial Sewing Machine and the Domestic Sewing Machine.
- Understanding the different types of the Industrial Sewing Machine.
- Understanding Work Aids and their importance.
- Acquiring knowledge on the Maintenance and Care of Sewing Machines.

PRE-SESSION ACTIVITY

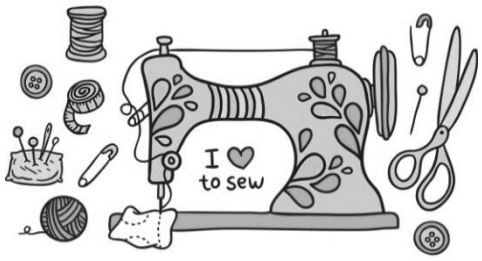
The Trainer shows the students a dismantled sewing machine for observational purposes.

1.1 The Sewing Machine and its parts

The Sewing Machine is a machine, with a mechanically attached needle, for sewing or stitching clothes. It can be operated either by foot or by electricity. Although a wide variety of sewing machines is available in the market nowadays, they can be categorized into two broad sections.

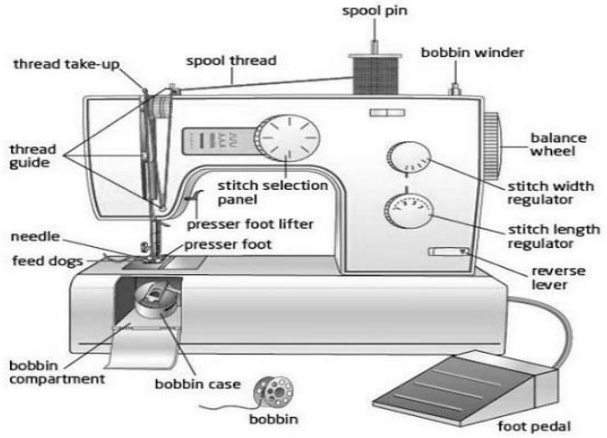
- Domestic Sewing Machines.
- Industrial Sewing Machines.

Simple hand or foot operated sewing machines, that we have seen our mothers and grandmothers use, were made mostly for domestic use. Fully automatic and computerized sewing machines are nowadays used in industries for bulk production in a limited period of time.



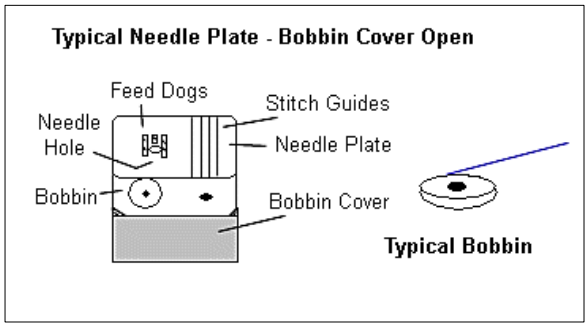
In this section, we will learn about the various parts of a Sewing Machine and their functions.

Needle Plate



The Needle Plate, also known as the Throat Plate, covers the area that holds the Bobbin. The Needle Plate consists of:

- An opening for the needle to pass through,
- Lines that serve as sewing guides,
- Openings for the feed dogs to fit through.

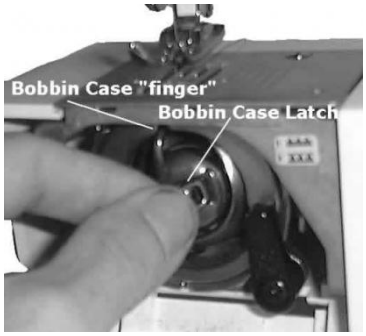


DO YOU KNOW

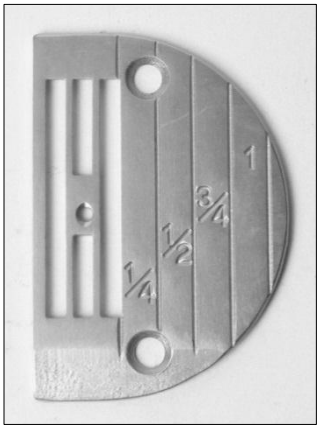
The word "Tailor "comes from the Anglo-Norman French word "***taillour***, meaning 'cutter'.

Bobbin

- The photograph on the left shows a Bobbin.
- The Bobbin is housed by the Needle Plate.
- The Bobbin thread stitches the fabric from below and locks the stitches in place.
- The thread can be seen when the sewn piece is turned over and you look at the reverse side.
- When you sew a line, the stitches on top come from the machine's spool of thread, while the stitches underneath come from the bobbin itself.
- The bobbin, housed by the needle plate, holds the bobbin thread, and is either set into the machine from the top or the front of the bobbin casing area.
- The bobbin is reached through a sliding door that opens in the front of the bobbin casing area. The bobbin is held safe with the bobbin latch as shown in the diagram.



Needle Hole



- This opening is a single hole, used for straight stitching, or an oblong hole, which allows the needle to make zigzag stitches.
- The needle plate on the right has one small circular hole (near the middle of the plate) used for regular, straight stitching, such as quilting or stitching straight seams.
- The two long openings on the outer edges allow the feed dogs to come up (please refer to the below explanation of Feed Dogs).

Feed Dogs

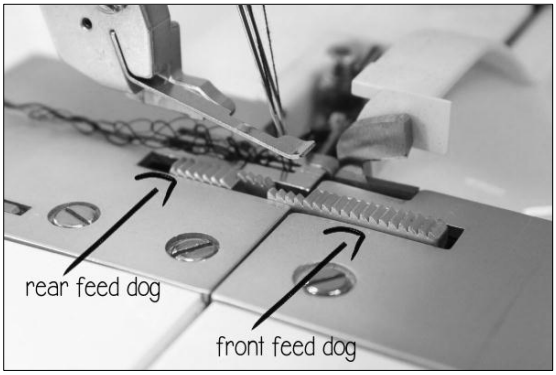
- The Feed Dog is a serrated mechanism that applies forward, downward, reverse, and upward movements against the Presser Foot to advance the fabric through the machine smoothly.
- Feed dogs feed the fabric (keep the fabric moving) while the machine sews.

An Introduction to the Industrial Sewing Machine and Work Aids

Things to Remember

- Never push or pull your fabric while the feed dog feeds through it.
- While stitching, gently guide your fabric through the feeding process.
- Place one hand on the fabric as it comes out from the back and the other hand on the fabric that is being fed from the front.

Differential Feed and Walking Feet



Feed dogs feed from below only. While sewing through two layers of fabric, it is quite possible that both layers get fed at different rates.

Although both the layers can be perfectly lined up when the stitching process starts, the layers can go "off" (one shorter than the other) towards the end of the stitching process.

This can be very difficult for the sampling tailor to work on.

1. Differential feed.

The differential feed controls the movement of both the front and the rear feed dogs.

- Both layers of fabric are fed at the same rate.
- Should be used if you are working on a fabric that stretches or puckers.
- While using the front feed dog, the knits can be protected against stretching (and getting wavy) by feeding in the fabric at a rate faster than drawing it out.
- The Differential feed can also be used for removing ripples from the fabric, by gathering it up deliberately while stitching Stretch Fabrics

Differential feed adjustment

Feed ratio	Main feed (rear)	Differential feed (front)	Effect	Application
0.7 - 1.0			Material is pulled tight.	Prevents thin materials from puckering
1.0			Without differential feed.	Normal sewing
1.0 - 2.0			Material is gathered or pushed together.	Prevents stretch materials from stretching or puckering

2. Walking Foot.

If your machine does not have a Differential Feed, you may accomplish the same tasks by using a Walking Foot

It has been designed to provide an extra set of feed dogs for the top of the fabric being sewn.

- It is big and bulky and has an arm that attaches to the needle bar.
- This extra bar cues the sewing machine to pull the top of the fabric at the same rate at which it is pulling the bottom.
- This helps in managing unusual fabrics.
- It helps in managing plaids and simplifying a specific design.
- It eases the handling of slippery fabrics and helps bulky products like quilts sew together smoothly.

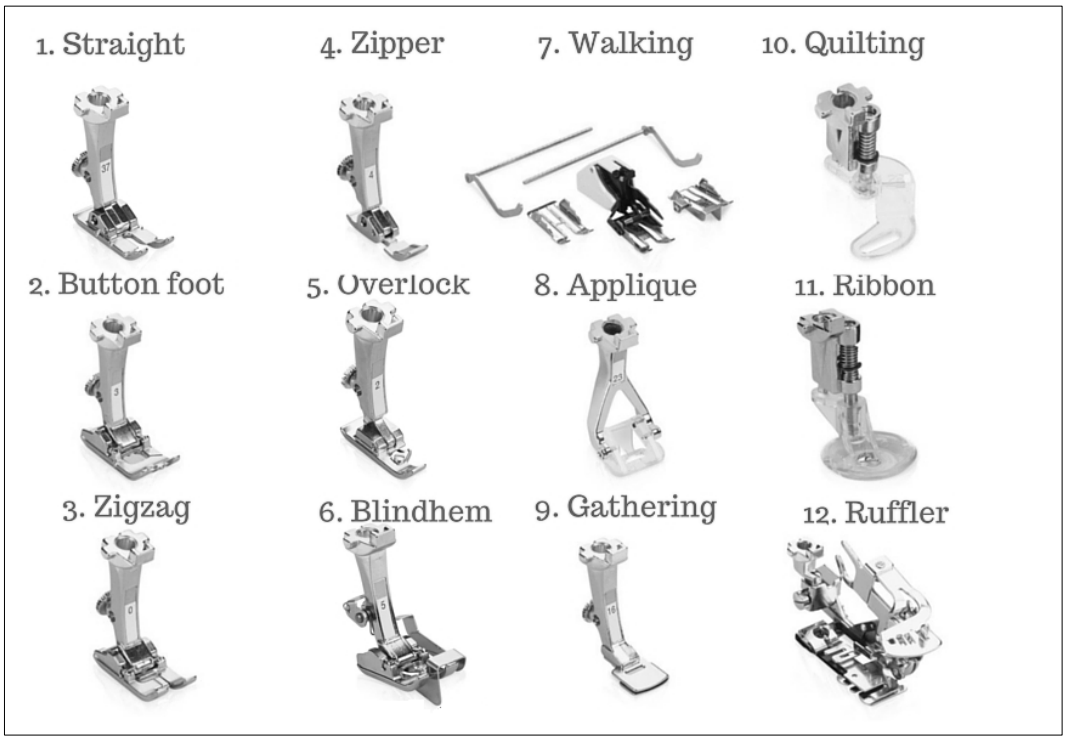
Presser Feet

A presser foot holds the fabric in place as the feed dogs guide the fabric being sewn. They also serve various specialized purposes, depending on the type.

Illustrated below are the various types of presser feet used for different purposes.

Example

Rolled Hem Foot causes the fabric to roll for stitching, and the **Applique Foot**, which has an opening at the back, allows the bulk of the satin stitch to pass through. Other special feet that are commonly used include the Z**ipper Foot** and **Buttonhole Foot**. The quality of work depends on one's knowledge of the available types and the uses of different Feet. These special feet also eliminate the causes of frustration while sewing.



NOTES

Test yourself

A. The two functions of needle plate are:

_____

_____

_____

_____

B. Draw lines to match the names of the correct presser feet:

Zipper

Applique

Straight

Blindhem

1.2 The Industrial Sewing Machine

- The industrial sewing machine is an advanced and heavy duty version of the standard Domestic Sewing Machine.
- Industrial sewing machines are generally used for bulk production in garment and textile industries. A typical Industrial Pocket Sewing Machine can sew 2,000 pockets in an eight-hour production cycle.
- An Industrial Sewing Machine is designed to sew several layers of tough material, such as leather, canvas, and vinyl, at the same time.
- The internal parts and motors of a standard domestic sewing machine are too delicate for managing heavy load.
- An industrial machine comes equipped with a clutch and a large servo motor for mass production, thus minimizing major wear and tear in its internal parts.

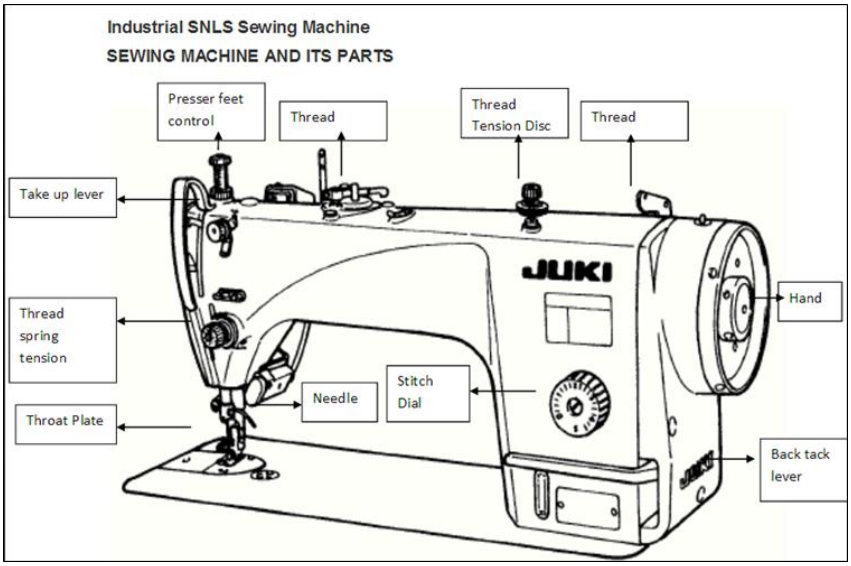
An industrial sewing machine is specifically built to resist long term wear and tear, and is therefore designed with superior strength, parts and motors. Traditional sewing machines, on the other hand, may include flimsy nylon or plastic gears.

1.2.1 Different Types of Sewing Machines

Single Needle Lock Stitch Machine (SNLS)

The Single Needle Lock Stitch Machine is the most popular and versatile sewing machine in the industry. The Lockstitch Sewing Machine makes precise and secured straight stitches on the top and the underside of the fabric.

PARTS OF A SINGLE NEEDLE LOCKSTICH MACHINE



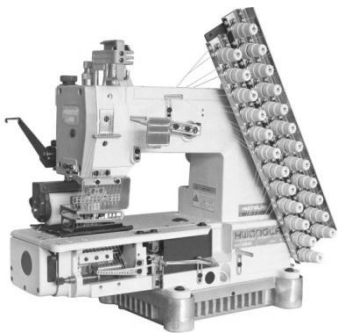
Overlock Machine

An Overlock / Overedge machine is a high speed sewing machine. This machine is popular for stitching Overedge stiches at a high speed. The available varieties of Overlock machines are:

- 2T Overlock Machine.
- 3T Overlock Machine.
- 4T Overlock Machine.
- 5T Overlock Machine.
- 6T Overlock Machine.

Flatlock Machine

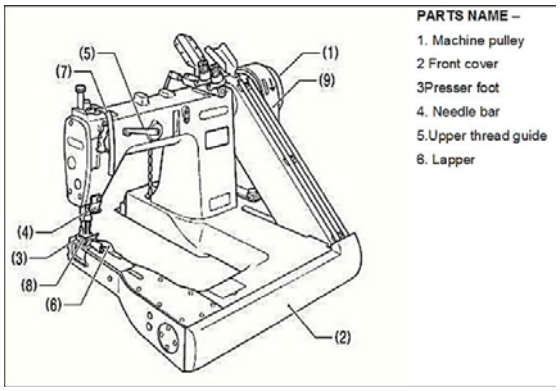
- Flat lock machines are specialized, high speed machines.
- In this machine, the stitch is made by two or more needle threads passing through the material, interlooping on the underside and interlocking on the upper side.
- These machines are mainly used for knitting.



Feed-of-the-Arm Machine:

This machine is largely used for attaching sleeves and making complex circular stitches while attaching the different parts of the garment.

PARTS OF A FEED-OF-THE-ARM MACHINE



Buttonhole Machine

This machine is used for sewing buttons in the garment.

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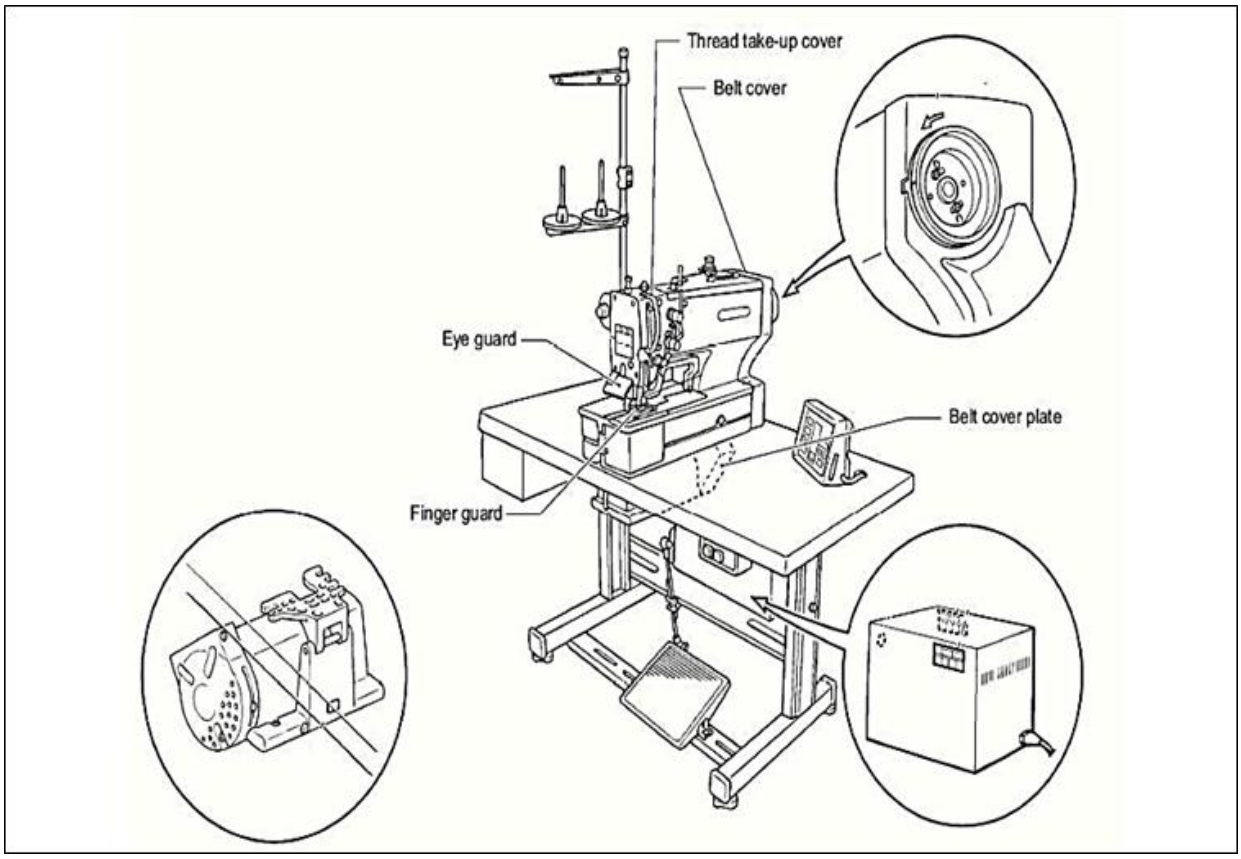
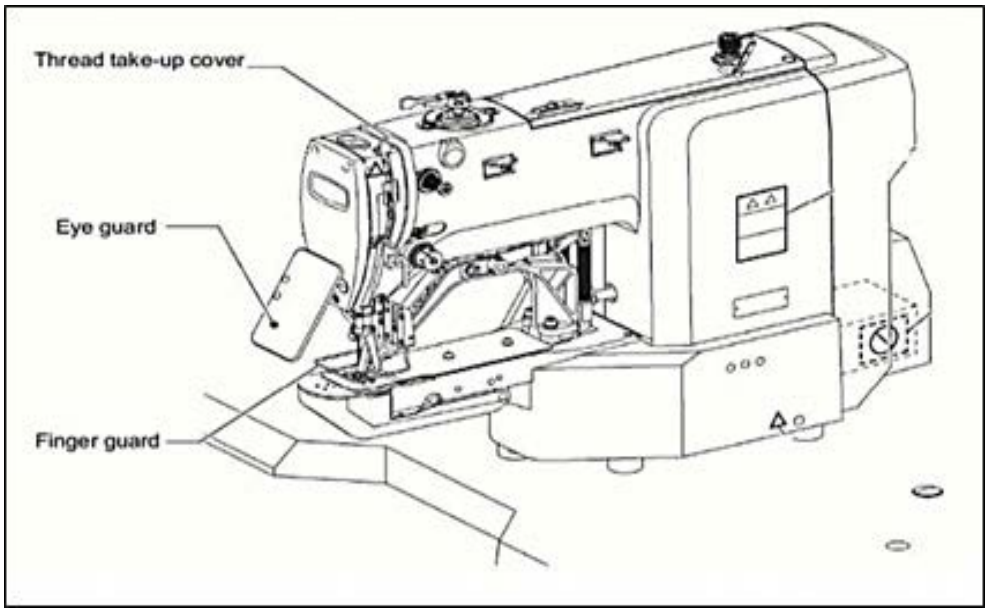
PARTS OF A BUTTONHOLE MACHINE

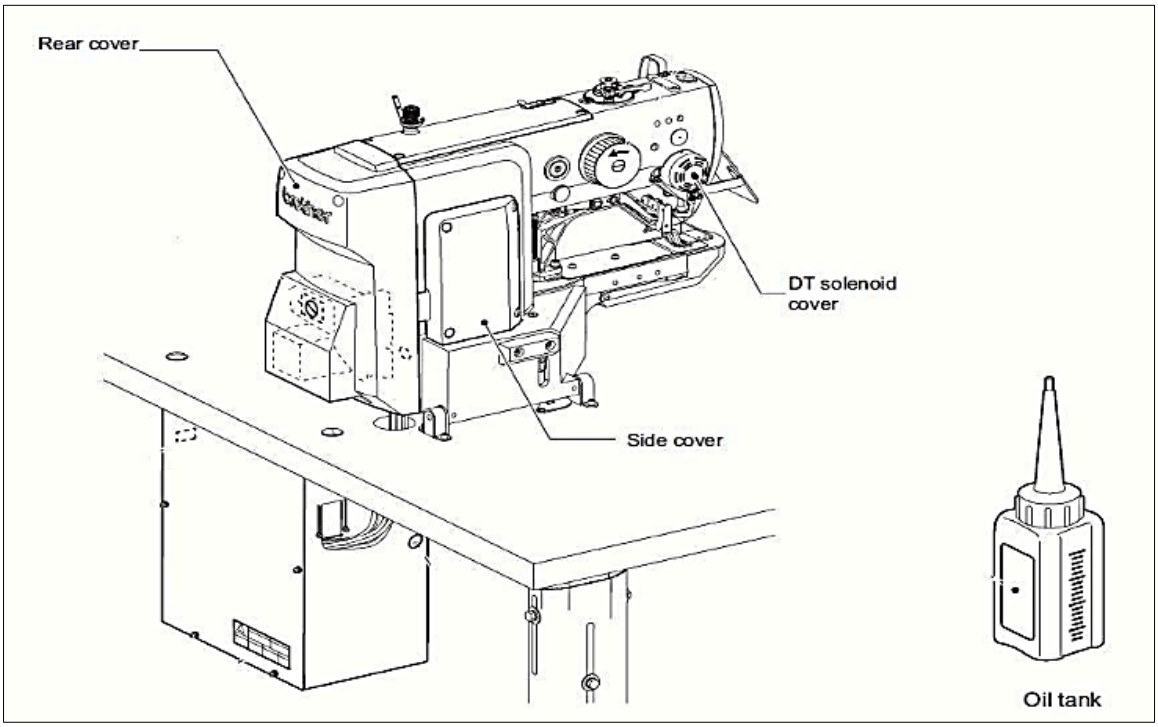


Bartack Machine

This machine is used for making secure Bartack stitches.

PARTS OF A BARTACK MACHINE





NOTES 

Test yourself:

A. Write a Short Note on each of the following:

1. Single Needle Lock Stitch Machine (SNLS):

2. Bartack machine:

3. Feed of the Arm Machine:

4. Button Hole Machine:

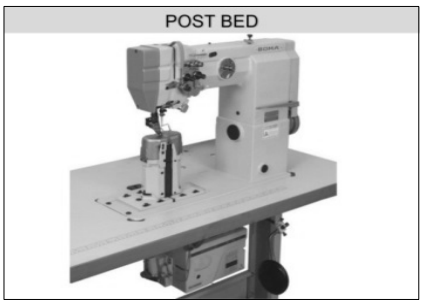
1.2.2 Types of Industrial Sewing Machine Beds

Industrial Sewing Machinescan be categorized on the basis of the arm and needle post designs. They are:

- **Flatbed:** Flatbed sewing machine is the most common type of industrial sewing machine used in factories. It is typically used to sew flat pieces of fabrics together.

- **Cylinder-bed:** The base of these machines is a narrow, horizontal column instead of a flat base. The fabric can pass around and under the column. The diameter of the Cylinder-bed varies from 5 cm to 16 cm.

- **Post-bed:** The notable feature of these machines is a column that rises above the flat base. The bobbins, feed dogs and/or loopers are installed in this raised column. The height of this column ranges from 10 to 45 cm.



- **Off-the-arm:** This is the most uncommon type of sewing used in factories. These machines require the material to be fed along the axis of a horizontal column. The design limits the length of the seam to the length of the column.

NOTES 

Test yourself:

Identify the sewing machines below and state one characteristic of each: