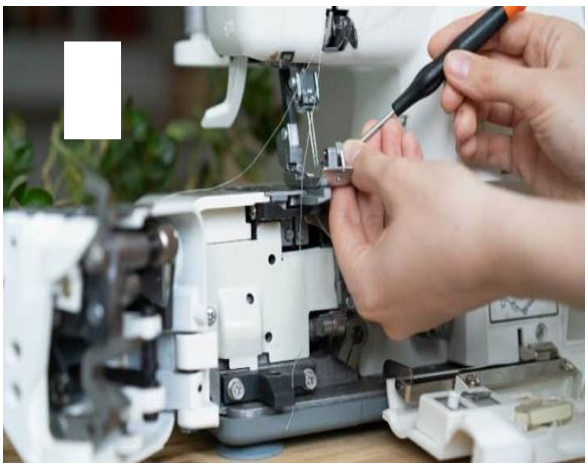
GARMENT PRODUCTION

Level-III

Based on November 2023, Curriculum Version II




Module Title: Maintain and Repair Garment Machineries

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Nominal duration: 40 hour

Prepared by: Ministry of Labor and Skill

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ACRONYM

OHS - Occupational health and safety

PPE - Personal Protective Equipment

RHB – Incident Reporting Form

TTLM - Teaching, Training and Learning Materials

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INTRODUCTION ABOUT THIS MODULE

Regular maintenance of the apparel machines will highlight any flaws and timely repair works can be carried out. If the equipment/machines are well maintained, it is less likely to breakdown, resulting to increase idle time, fewer repair costs and thereby increased revenue. To help with this, this training module covers this module is designed to meet the industry requirement under the Garment Production occupational standard, particularly for the unit of competency: **This module covers the units**

- Program safety and maintenance
- Basic maintenance program
- Inventory of machineries and complete work activities
- Basic Preventive Maintenance of tools

Learning Objective of the Module

- Check safety and maintenance
- basic programmed maintenance
- Perform Inventory of machineries and complete work activities
- Basic Preventive Maintenance of tools

Module Instruction /for the module

For effective use this modules trainees are expected to follow the following module instruction:

1. Read the information written in each unit
2. Accomplish the Self-checks at the end of each unit
3. Perform Operation Sheets which were provided at the end of units
4. Do the “LAP test” giver at the end of each unit and
5. Read the identified reference book for Examples and exercise

Unit One: Program safety and maintenance checks

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

- machine and equipment's inspection
- Machine operational procedures
- Apparel machine calibration
- Tools, instruments and equipment

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

- Determine machine and equipment's inspection
- Inspect Machine operational procedures
- Follow up Apparel machine
- Calibrate apparel machinery
- Sort tools, instruments and equipment

1.1 Machine and Equipment's Inspection

Inspecting and checking machines and equipment in garment is important to ensure that they are in good working order and that they are not a safety hazard. It is also important to inspect and check machines and equipment to identify any potential problems early on, so that they can be repaired or replaced before they cause a breakdown.

There are a number of different ways to inspect and check machines and equipment in garment. Some common methods are

A. **Visual inspection:** This involves looking at the machine or equipment for any signs of damage or wear and tear.

B. **Functional inspection:** This involves testing the machine or equipment to make sure that it is working properly.

C. **Safety inspection:** This involves checking the machine or equipment for any potential safety hazards.

The specific inspection and checking procedures that are used will vary depending on the type of machine or equipment being inspected. However, there are some general tips that can be followed:

- Inspect machines and equipment on a regular basis. This will help to identify any potential problems early on.
- Use a checklist to ensure that all aspects of the machine or equipment are inspected.
- Keep records of all inspections and checks. This track any changes over time and to identify any trends.

By following these tips, ensure that your machines and equipment are in good working order and that they are not a safety hazard. If you find any problems with a machine or piece of equipment, it is important to take corrective action immediately. This may involve repairing or replacing the machine or equipment, or making adjustments to the operating procedures.

YOUR LOGO HERE

INDUSTRIAL SEWING MACHINE
INSPECTION REPORT

GENERAL INFORMATION					
DIVISION		COMPANY		MACHINE:	
PREUSE DATE		TIME:	POSTUSE DATE		TIME:







DETAILS		DETAILS	
☐ STAND/TABLE CONDITION	☐ CASTERS FUNCTIONAL/LOCKED	☐ STAND MOVES UP AND DOWN	☐ CLEAN WORK SURFACE
☐ MACHINE OIL	☐ BOBBIN	☐ BELT	☐ BELT COVER (if Equipped)
☐ TIMING	☐ TENSION	☐ CONTROL BOX COVER	☐ PULLY DIRECTION
☐ NEEDLE	☐ PROPERLY THREADED	☐ CLOTH FOOT	☐ CLEAN MACHINE

Figure 1.1 Industrial sewing machine inspection report

Safety and maintenance

Safety is the condition of being protected from or not exposed to danger, risk, or injury. It is an important consideration in all aspects of life, including the workplace, the home, and the environment. Maintenance is the upkeep and preservation of something, typically property or equipment. It is important to perform maintenance on a regular basis to keep things in good condition and prevent problems from developing.

Safety and maintenance are closely related. By performing regular maintenance on equipment and facilities, you can help to prevent accidents and injuries. For example, by regularly inspecting and lubricating machinery, you can reduce the risk of breakdowns and failures.



Figure 1.2 Maintenace machine saftey

1.2 Machine Operational procedures

Operational procedures are the step-by-step instructions on how to perform a particular task or job in the garment manufacturing process. They are important for ensuring that all tasks are completed to a consistent standard and that the garment manufacturing process is efficient and productive., Operational procedures can be developed for a wide range of tasks in garment manufacturing, such as:

- Receiving and inspecting raw materials
- Cutting fabric
- Sewing garments
- Inspecting finished garments
- Packing and shipping garments

To ensure the smooth operation of the garment production process, it is important to follow up on operational procedures to check the machine in garment. This includes:

- Checking the machine for any signs of damage or wear and tear. Any damaged parts should be repaired or replaced immediately.
- Checking the machine's settings to ensure that they are correct. This includes checking the needle size, thread tension, and stitch length.
- Testing the machine to make sure that it is operating properly. This can be done by sewing a sample piece of fabric.

Here are some specific steps that can be followed:

Steps 1 - Check the machine's power cord and plug to make sure they are properly connected.

Steps 2 - Turn on the machine and check the lights and displays to make sure they are working properly.

Steps 3: thread the machine with the correct type and color of thread.

Steps 4: Select the correct needle size and stitch length for the fabric you are sewing.

Steps 5: Sew a sample piece of fabric to test the machine.

Steps 6: the machine is operating properly; you can begin sewing your garment.

It is also important to follow the manufacturer's instructions for maintaining and operating your garment machine. This will help to ensure that the machine lasts longer and operates safely.

1.3 Apparel Machineries Calibration

Apparel machine calibration refers to the process of adjusting and aligning various components of a garment manufacturing machine to ensure its optimal performance and accuracy. Proper calibration is crucial to achieve consistent and high-quality results in the production of apparel.

Here are the general steps involved in apparel machine calibration:

1. **Understand the Machine:** Familiarize yourself with the specific machine working with. Read the manufacturer's instructions and guidelines to gain a thorough understanding of its components, functions, and calibration requirements.
2. **Gather Tools:** Prepare the necessary tools and equipment for calibration. These may include wrenches, screwdrivers, measuring devices (such as calipers or gauges), and any specialized tools recommended by the manufacturer.
3. **Check Machine Condition:** Before starting the calibration process, inspect the machine for any visible damage, loose parts, or signs of wear. Ensure that all safety features are in place and functioning correctly.
4. **Establish Baseline:** Determine the current settings and performance of the machine as a baseline reference. This may involve recording measurements, testing sample runs, or assessing the machine's output against predetermined quality standards.
5. **Adjust Tension and Alignment:** Many apparel machines, such as sewing machines or fabric cutters, require proper tension and alignment adjustments. Follow the manufacturer's instructions to adjust the tension of threads, belts, or other relevant components. Check and adjust the alignment of needles, blades, or cutting edges as needed.
6. **Verify Speed and Feed Settings:** If applicable, review and adjust the machine's speed and feed settings to match the specific fabric or material being processed. Different materials may require varying speeds or feed rates for optimal results.
7. **Test Run and Fine-tuning:** After making initial adjustments, run test samples through the machine. Evaluate the output for any irregularities, such as uneven stitches or improper cuts. Fine-tune the machine by making incremental adjustments until the desired results are achieved consistently.
8. **Document Calibration Settings:** Once you have successfully calibrated the machine, record the calibration settings, including specific measurements, tension levels, or any other relevant parameters. This documentation will serve as a reference for future calibration or troubleshooting needs.

9. **Periodic Maintenance:** Regularly inspect and maintain the machine to prevent issues and ensure on going performance. Follow the manufacturer's recommended maintenance schedule, including lubrication, cleaning, and replacing worn-out parts.

It's important to note that the specific calibration process may vary depending on the type and model of the apparel machine you are working with. Always refer to the manufacturer's instructions and guidelines for accurate calibration procedures tailored to your specific equipment.

Purpose: To ensure our Machine Equipment are in good condition and it serve the purpose correctly.

1. Machine should be calibrated after one year of using.
2. We calibrated all our machine equipment before the expiration date.
3. If the machine is not working correctly we send for service or for repair to ensure this works properly.
4. We keep calibration records for all Generator machines and equipment for our reference.

Calibration status verification report that is very important part of the whole calibration process to need verify the records are maintained are correct or not, audit of the calibration status verifications records checked by suddenly, reason that calibration is very sensitive requirements to measure devices and instruments can loss the finance and value in market in case of wrong measured material are deliver to customers.

Calibration Status Verification Report

SR. NO.	Name of Machine or Location where Instrument being used.	Details of Instruments. / Equipements.			Name of Contact Person	Calibration Status Verified with		Calibration Compliance Status
		Name	Identification	Range		Details of IMTE.	Calibration report.	

Name of Auditor & Signature:	Time :	Date :

Figure 1.3 Calibration status verification report format

Apparel machinery is the equipment used to manufacture garments. It includes a wide range of machines, from simple tools like needles and scissors to complex machines like sewing machines and cutting machines. Apparel machinery is used to perform all of the tasks involved in garment manufacturing, from cutting fabric to sewing garments to finishing garments.

1.3.2 Common types of apparel machinery

A. **Sewing machines:** Sewing machines are used to sew together pieces of fabric to create garments. There are many different types of sewing machines available, each designed for a specific task. For example, there are sewing machines for sewing straight seams, zigzag seams, and over lock seams.

B. **Cutting machines:** Cutting machines are used to cut fabric into the shapes needed for garments. There are many different types of cutting machines available, including manual cutting machines, electric cutting machines, and laser cutting machines.

C. **Pressing machines:** Pressing machines are used to iron garments and to set seams. There are many different types of pressing machines available, including steam irons, dry irons, and hydraulic presses.

D. **Finishing machines:** Finishing machines are used to add finishing touches to garments, such as buttons, zippers, and labels. There are many different types of finishing machines available, including button attaches, zipper attaches, and label attaches.

Calibrating apparel machinery is the process of adjusting the machine to ensure that it is producing accurate results. This is important for ensuring the quality of finished garments and for avoiding costly mistakes. The specific steps involved in calibrating apparel machinery will vary depending on the type of machine. However, there are some general principles that apply to all machines.

General steps for calibrating apparel machinery:

1. Clean and inspect the machine. This includes removing any dirt or debris and checking for any signs of damage or wear and tear.
2. Follow the manufacturer's instructions for calibration. This will typically involve adjusting specific settings on the machine.
3. Test the machine to make sure that it is calibrated correctly. This can be done by sewing a sample piece of fabric and measuring the results.

Examples of how to calibrate different types of apparel machinery:

A. **Sewing machines:** Sewing machines need to be calibrated to ensure that they are sewing the correct stitch length and tension. To calibrate a sewing machine, you will need to adjust the needle size, thread tension, and stitch length. You can test the machine to make sure that it is calibrated correctly by sewing a sample piece of fabric and measuring the results.

B. **Cutting machines:** Cutting machines need to be calibrated to ensure that they are cutting the fabric accurately. To calibrate a cutting machine, you will need to adjust the blade height and the cutting speed. You can test the machine to make sure that it is calibrated correctly by cutting a sample piece of fabric and measuring the results.

C. **Pressing machines:** Pressing machines need to be calibrated to ensure that they are pressing the fabric at the correct temperature and pressure. To calibrate a pressing machine, you will need to adjust the temperature and pressure settings. You can test the machine to make sure that it is calibrated

1.4 Sort tools, instruments and equipment

To sort tools, instruments and equipment in garment, we can group them into different categories based on their function or purpose. Maintenance hand tool and equipment. Here are some examples:,

1.4.1 Screw drivers

Screw driver is a tool, manual or powered, for screwing (installing) and Un screwed (removing) screws. A typical simple screwdriver has a handle and shaft, ending in tip the user puts Into the screw head before turning the handle handles are typically wood, metal, or plastic and usually hexagonal, square, or oval in cross-section to improve grip and prevent the tool from rolling when set down.

A typical screwdriver comprises: an approximately cylindrical handle of a size and shape to be held by a human hand; an axial shaft embedded in, and protruding from, the handle; and a tip found at the end of the shaft, opposite the handle. The handle and shaft allow the screwdriver to be positioned and supported and, by rotating the handle, torque is applied to the tip via the screwdriver's shaft.

1.4.2 Cleaning Brush

A cleaning brush is a tool with bristles wire or other filaments, used for cleaning surface finishing and for many other purposes. It is one of the most basic and versatile tools known to mankind It generally consists of a handle or block to which filaments are affixed either parallel- or perpendicular wise, depending on the way the brush is to be gripped during use. The material of both the block and bristles or filaments is chosen to withstand hazards of its application, such as corrosive chemicals, heat or abrasion.

Many sewing machine problems are often the result of thread and lint build-up in the area between the face plate and the bobbin. A flat artist's paintbrush in 1/2-inch size is useful, and a soft blush or makeup brush with a short, stubby handle is also effective. The long, soft bristles of the makeup brush clean without damage and hold lint well.

How to clean the machine

1. Take a machine apart, first up plug the machine. Take out the bobbin casing, lower the race cover and remove the hook. Take of the presser foot and throat plate.
2. Grab a brush - Brush out any lint that built up in the bobbin casing and throat plate .most machines come with a small plastic brush, through any anti-static brush or pipe cleaner will work
3. Oil the machine, A little oil goes a long way and yes, it is totally possible to over oil your machine. If that is happened, run some muslin pre scrap fabric through the machine unit it comes out clean and without oil stains
4. Reassemble the machine, Place the hook, bobbin casing and throat plate back in the respective places. Change your needle and reattach the presser foot. Replace the bobbin, thread your machine

1.4.3 Blower

An air blower is a machine used for generating flow of air at substantial pressure and also defined as, a blower is a device designed to blow cool or hot air over wet or damp surface, in order to accelerate the evaporation of water particles and dry the surface. *Air blow can be categorized in the following types on the basis of principle of air flow generation*

A. **Centrifugal blower –** air enters axially and leaves the blade radial direction
B. **Axial fans –** air enters axially and also leaves the fan blades in axial direction



Figure 1.5 Air blower

1.1.4 Tweezers

Tweezers are small tools used for picking up objects too small to be easily handled with the human hands. They are probably derived from tongs pincers or scissor like pliers used to grab or hold objects. In a scientific or medical context they are normally referred to as forceps. Tweezers makes use of two third class levers connected at one fixed end with the pincers at the others



Figure 1.6 Tweezers

1.4.5 Oiling can

A can that stores oil to be used in a sewing machine for various purposes. Oilcan is used to lubricate various leather goods tools, equipment's and machines with suitable machine oils.



Figure 1.7 Oiling Can

1.4.6 Cleaning cloth

Different types of cloth are available for cleaning parts of a sewing machine. Anything, which is dry, is used for cleaning sewing machine and its parts.

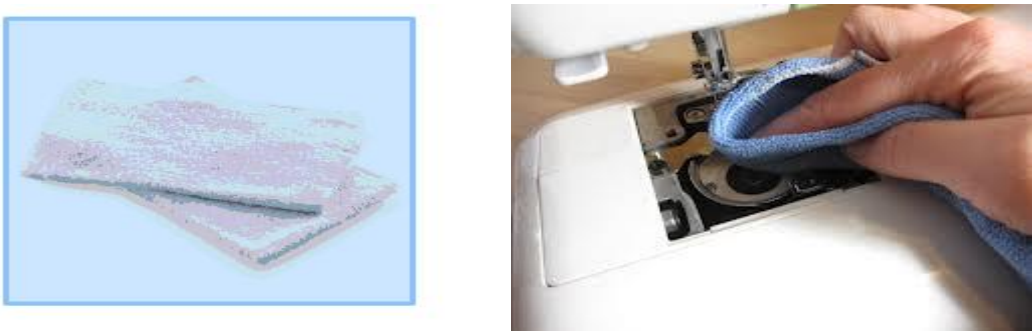


Figure 1.8 cleaning cloth

1.4.7 Pliers

Three types of pliers' viz. nose pliers, diagonal cutting pliers and lineman's pliers are very useful in a leather products manufacturing workshop for cutting and bending, pulling small fittings and holding metal fittings that are to be filed or hammered. Nose pliers are used for cutting and bending thin wires and small fittings. Diagonal cutting pliers are sometimes called as wire cutters. It has scooped jaws, which make them ideal for extracting small nails, or damaged fittings. Lineman's pliers are sometimes called engineer's pliers.

They are very useful for bending, gripping and manipulating sheet, metal and wire. Their wide, heavy, checked jaws and long handles provide leverage and nonslip hold necessary to turn the we head of a bolt, the nut or stubborn screw whose slot is too chewed up to be removed with a screwdriver. These pliers are used in fabricating leather goods, repair works and maintenance of machinery.



Figure 1.9 Linesman's pliers Diagonal cutting pliers Nose pliers

1.4.8 Pincer

Pincer pulls out nails that a claw hammer cannot (for example a wire nail without head). It is used for short pulls. The fine claw at the end of pincer handles slips well into the well-driven nails or rivets.

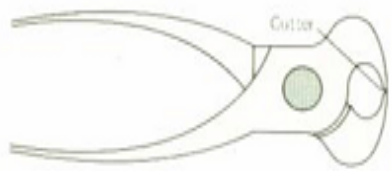


Figure 1.10 Pincer

1.4.9 Needle Theaters and Small Flashlights

In order to repair a sewing machine, you will need to thread the needle and check the stitching. Save time by keeping a few needle traders on hand, along with some miniature flashlights. The electric sewing machines often have to be unplugged to work on internal parts for safety, so the lighting provided by the machine is not available. Have easy lighting available, even if it is a key chain flashlight.

Other Useful Tools

Long-handled tweezers are handy for working on a sewing machine, and the ones with the angled pinchers are best. A flat magnet is good for holding or retrieving tiny pieces and parts when working on the sewing machine. Scissors are helpful for the sewing machines that do not have a built-in thread cutter (or if you don't know where it is). The instruction book for the model you are working on is an essential tool, and some of these are available online.

Finally, we can also sort garment tools, instruments and equipment by their manufacturer or brand. This can be helpful if we need to order replacement parts or accessories., No matter how we choose to sort them, it is important to have a system in place for organizing and storing garment tools, instruments and equipment. This will help us to keep our workspace tidy and efficient, and it will make it easier to find the tools and equipment we need when we need them.

SELF- CHECK 01

PART ONE: SAYS TRUE OR FALSE (each Question 1 point)

1. Checking and calibrating apparel machinery is the process of adjusting the machine to ensure that it is producing accurate results.
2. All garment workers should receive safety training.
3. It is safe to operate machinery without proper guarding.
4. Good lighting and ventilation are important for safety in garment factories.
5. Safety is the condition of being protected from or not exposed to danger, risk, or injury.

PART TWO: MULTIPLE CHOSE QUESTIONS (each Question 1 point)

1. Which one of the following is NOT the machine maintenance hand tool and equipment?
   A. Cleaning Brush C. Screw driver
   B. Glove D. Tweezers
2. Which of the following are common methods for inspecting and checking machines and equipment in the garment industry?
   A. Visual inspection C. Safety inspection
   B. Functional inspection D. All the Above
3. Which one of the following is body and foot protection material?
   A. Protective Goggle C. Mask
   B. Glove D. Safety apron
4. ---------- is a tool with bristles wire or other filaments, used for cleaning surface finishing and for many other purposes.
   A. Centrifugal blower C. Axial fans
   B. Cleaning brush D. None the above
5. Which of the following are examples of tasks in the garment manufacturing process for which operational procedures can be developed?

A. Inspecting raw materials C. Sewing garment
B. Cutting fabric D. All the above

PART THREE: SHORT ANSWER QUESTIONS

Instruction: write short answer for the given question. You are provided 3 minute for each question and each point has 2 Points

3. List down the tools required performing maintenance?
4. How to clean the sewing machine?
5. What are the common types of apparel machinery?
6. Describe the steps for calibrating apparel machinery?
7. How to calibrate different types of apparel machinery?

UNIT TWO: Basic Maintenance Programme

This unit to provide you the necessary information regarding the following content coverage and topics:

- Maintenance program
- Clean and lubricate machine
- Consumable components
- Fluids and lubricants
- Minor repairing
- Adjust machine moving part

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

- Identify maintenance program
- Replace clean and lubricate machine
- Replace Consumable component
- Topping up Fluids and lubricant
- Perform minor repairing
- Adjust machine moving part

2.1 Concept of basic maintenances program

What is maintenance?

The process of preventing a condition or situation or the state of being prevented, the technical meaning of maintenance involves functional checks, servicing, repairing of necessary devices, equipment, machinery, to the machinery or equipment perform its required functions.

A basic maintenance program in garment is a set of procedures and tasks that are performed to keep machinery and equipment in good working order. This helps to prevent breakdowns, improve the quality of products, and extend the lifespan of assets. A basic maintenance program is listed bellow

1. **Daily maintenance:**
   - Clean and lubricate all machinery according to the manufacturer's instructions.
   - Check for any signs of wear or damage to machinery and repair or replace as needed.
   - Keep the factory floor clean and free of obstructions.
2. **Weekly maintenance:**
   - Conduct a more thorough inspection of all machinery and make any necessary repairs.
   - Check the fire extinguishers and ensure that they are properly charged.
   - Clean the factory lighting fixtures and ensure that all bulbs are working.
3. **Monthly maintenance:**
   - Conduct a comprehensive inspection of all machinery and make any necessary repairs.
   - Check the electrical system and ensure that all wiring is in good condition.
   - Test the emergency alarms and ensure that they are working properly.

In addition to these routine maintenance tasks, garment factories should also have a plan for responding to emergencies, such as fires and earthquakes. The plan should include procedures for evacuating the factory and providing first aid to injured workers. Garment factories should also keep a record of all maintenance activities. This record can be used to track trends and identify any areas where maintenance may be needed more frequently. Here are some additional information for developing and implementing a basic maintenance program in garment:

- Involve workers in the development and implementation of the program. Workers are often the first to identify problems with machinery and equipment, and their input can be valuable in preventing accidents and injuries.

- Create a maintenance schedule and post it in a visible location. This will help to ensure that all maintenance tasks are completed on time.
- Provide workers with the training and resources they need to carry out maintenance tasks safely and effectively.
- Conduct regular audits to ensure that the maintenance program is being followed and that all machinery and equipment is in good working order.

Machine Maintenance: Machine plays very important role in every industry. The machine is an important resource that is constantly used for adding value to a product. So it is necessary to keep in the best operating condition. Otherwise, there will be excessive downtime and also interruption of production if is used in the mass production line. Poor working of machinery and equipment will lead to quality-related problems, it's necessary to maintain the machine in good operating conditions with economical cost. The machine maintenance system is the key factor for Garments Manufacturing. The factory's work efficiency depends on machine fitness too.



Figure 2.1 Machine maintenance in textile and apparel industry

2.2 Clean and lubricating Machinery

Cleaning sewing machines is important to keep them in good working order and to prevent problems from developing. Sewing machines can become dirty from dust, lint, and thread residue. This can cause the machine to run slow, produce uneven stitches, or even jam.

Cleaning and lubricating machinery and equipment in garment factories is essential for ensuring their safety and efficiency. By following a regular cleaning and lubrication schedule, garment factories can help to prevent accidents and injuries, extend the lifespan of their machinery and equipment, and improve their bottom line.

Cleaning and lubricating machinery and equipment in garment factories:

1. **Cleaning:** Use a soft brush or cloth to remove dust and debris from all surfaces of the machinery and equipment. Use a mild soap and water solution to clean any dirt or grime.
   - Avoid using harsh chemicals or abrasive cleaners, as these can damage the machinery and equipment.
   - Pay special attention to areas where dust and debris can accumulate, such as vents and fans.
2. **Lubrication:** Use the lubricant recommended by the manufacturer of the machinery and equipment.
   - Apply the lubricant to all moving parts according to the manufacturer's instructions.
   - Be careful not to over-lubricate, as this can attract dirt and debris and lead to premature wear and tear.

2.2.1 General cleaning of machine

As you clean the machine, it is best to clean one area at a time. Remove only a parts involved and be sure to note where each part is from, its positions, and which side is top. Remove all parts possible in order to clean the machine thoroughly. Keep the parts in order to make it easier to replace them.



Figure 2.2 clean sewing machine

When removing parts remember that “left is looses and right is tight” on practically all screws and bolts. To remove any dirt and oil, dip a cloth to brush in cleaning fluid and scrub all parts of the machine that can be reached. Use a needle, knife, or other pointed instrument to dig or scrape away any remaining gummed dirt or lint in the feed dog, around the bobbin cases and in other

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

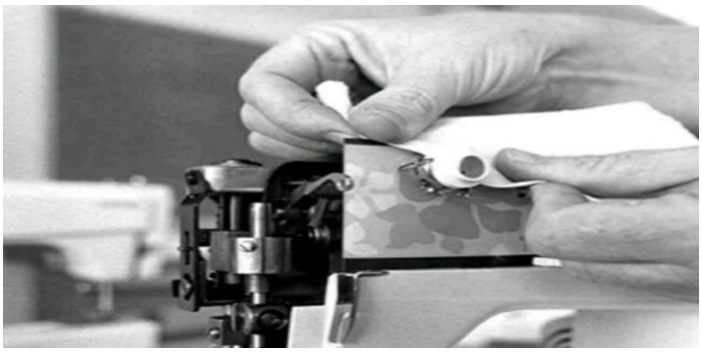


Figure 2.3 Upper Thread Tension clean

How to change/ replace sewing machine needles

Changing needle is a really simple operation if you are starting to get tangled a lot or drop stitches then changing your needle is good first fix to see if that sorts out

1. Loosen the needle set screw, Pull the needle downwards and out of the needle bar
2. Insert a new needle, push upward until the butt of the needle hits the stop
3. If using industrial sewing machine turn the needle so the scarf is on the same side as the hook assembly on the machine and Tighten the needle set screw

How to replace bobbin

1. Turn of sewing machine and locate the bobbin compartment cover
2. Remove the cover to expose the compartment
3. Put the release lever away from the bobbin case. The release lever is on a hinge
4. Slip the bobbin case onto the spool inside the compartment, release the leaver on the bobbin case and twist the case gently to ensure the case is properly secured the case is

2.2.2 Clean and lubricate machinery/equipment

The frequency of cleaning and lubricating machinery and equipment will vary depending on the type of machinery and equipment, the environment in which it is operated, and the frequency with which it is used. However, it is generally recommended to clean and lubricate machinery and equipment on a daily or weekly basis.

Additional: - Keep a record of all cleaning and lubrication activities. This record can be used to track trends and identify any areas where maintenance may be needed more frequently. Train

workers on how to clean and lubricate machinery and equipment safely and effectively. Develop and implement a procedure for responding to spills and leaks.

By following these tips, garment factories can ensure that their machinery and equipment is properly cleaned and lubricated, which will help to prevent accidents and injuries, extend the lifespan of their machinery and equipment, and improve their bottom line.

2.3 Replace Consumable components

Replacing consumable parts of an industrial sewing machine is an essential maintenance practice to ensure its optimal performance and longevity. Here are some common consumable parts that may need replacement:

1. Needles: Needles are one of the most frequently replaced parts on a sewing machine. They can become dull, bent, or broken with use. Different types and sizes of needles are available for different fabrics and stitching techniques.
2. Bobbins: Bobbins hold the lower thread in the bobbin case and are usually made of metal or plastic. Over time, bobbins can wear out, become damaged, or accumulate thread residue.
3. Bobbin Cases: The bobbin case holds the bobbin in place and controls the tension of the lower thread. If the bobbin case becomes damaged or worn, it can affect the quality of stitches. Replace the bobbin case if you notice irregular tension or if it's showing signs of wear.
4. Feed Dogs: Feed dogs are metal teeth that move the fabric through the machine during stitching. With regular use, feed dogs can become worn or damaged, resulting in uneven fabric feeding. If you experience fabric slipping or uneven stitches, it may be time to replace the feed dogs.
5. Presser Feet: Presser feet apply pressure to the fabric, guiding it under the needle. Different types of presser feet are available for various sewing techniques. If a presser foot is damaged or worn, it may not provide adequate pressure or smooth fabric guidance. Replace presser feet as needed to ensure accurate stitching.
6. Belts: Industrial sewing machines often have belts that transfer power from the motor to various machine components, such as the needle or bobbin winder. If you notice slipping, fraying, or general wear and tear on the belts, they may need replacement to maintain proper machine operation.

7. Thread Guides and Tension Disks: Thread guides and tension disks help regulate thread tension during stitching. If the thread guides are bent or damaged, or if the tension disks are not functioning properly, it can result in inconsistent stitch quality. Replace these parts if necessary to ensure even thread tension.

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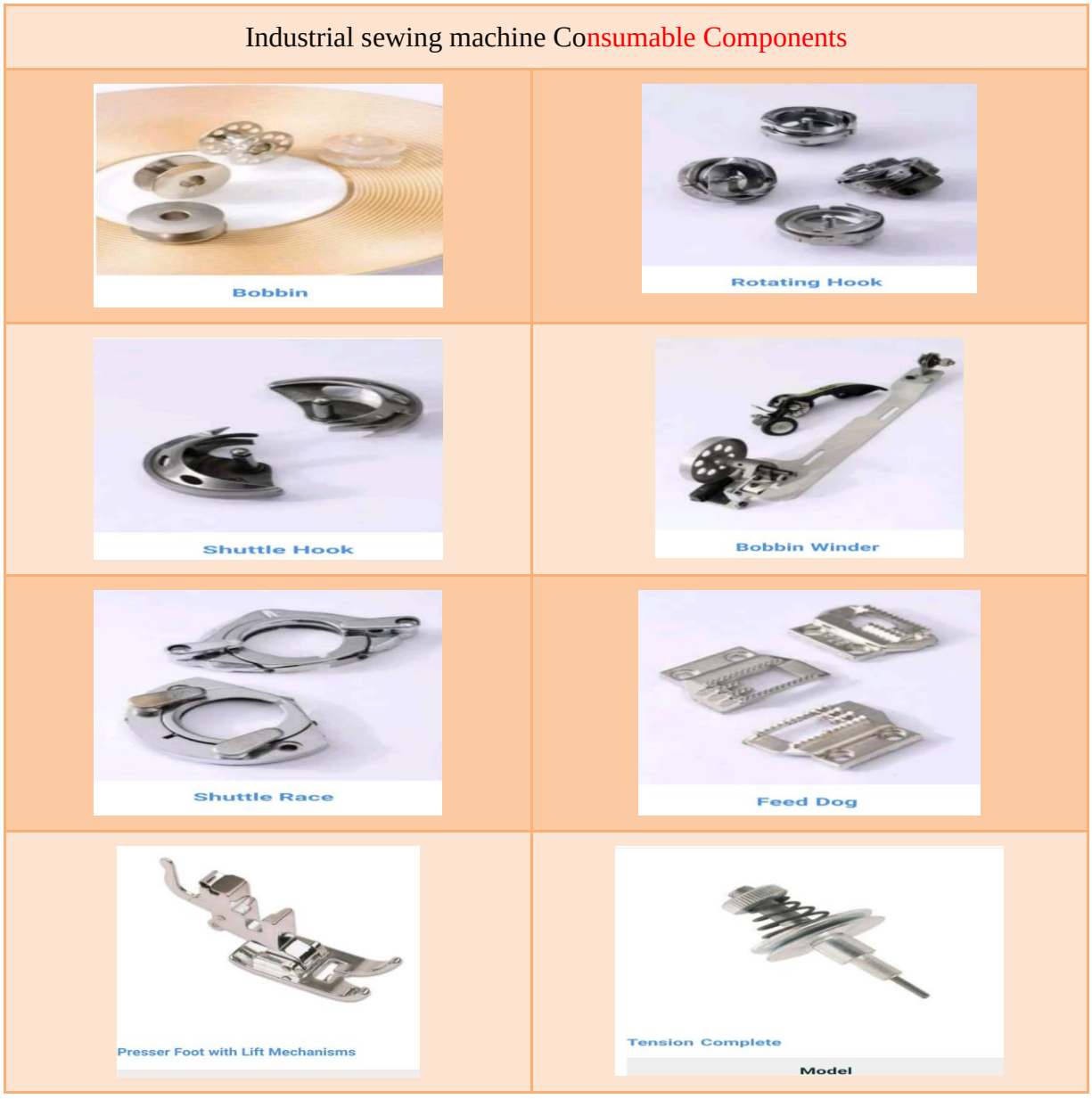


Figure 2.6 Industrial sewing machine Consumable Components

When replacing consumable parts, consult the sewing machine's user manual or contact the manufacturer for specific instructions and compatible replacement parts. It's also recommended

to follow a regular maintenance schedule and clean the machine regularly to prevent excessive wear on consumable parts.

2.4 Topping up fluids and lubricants

Sewing machine to operate effectively regular lubricant oil change is great choice for maintaining the longevity of the machine. Failure to change the oil in conversely, carefully selected and changed at the right time oil may help to prevent damage of machine.

When it is necessary to change lubricants

It is important to note that the oil change frequency may depend on the using time or production time and conditions. Also, the air temperature, machine condition and the quality of lubricants used have a significant influence artificial and natural are available, created from common source such as coconut oil.

Fluids and lubricants play an important role in the operation and maintenance of garment machinery and equipment. They help to reduce friction, wear and tear, and heat generation. It is important to replace and/or top up fluids and lubricants on a regular basis to ensure that machinery and equipment is operating efficiently and safely.

Replacing and/or topping up fluids and lubricants in garment:

- Identify the fluids and lubricants that need to be replaced or topped up. This information can be found in the manufacturer's instructions for the machinery and equipment.
- Use the fluids and lubricants recommended by the manufacturer. Using the wrong fluids and lubricants can damage the machinery and equipment.
- Follow the manufacturer's instructions for replacing and/or topping up fluids and lubricants. This will help to ensure that the fluids and lubricants are applied correctly and that the machinery and equipment is not overfilled.

In addition to replacing and/or topping up fluids and lubricants, it is also important to clean and inspect the machinery and equipment on a regular basis. This will help to identify any potential problems early on and prevent them from causing damage to the machinery and equipment or leading to accidents and injuries.

2.5 Perform minor repairing

Lock stitch machine minor maintenance and repair

The machine which produces stitches by interlacing of threads is called lock stitch machine. This machine produces durable stitches and is very popular in garments industries.

Objects:

To know about lock stitch machine and different parts of the machine.
To know about thread path of the machine.
To know about the specification of the machine.
To know about adjustment points of the machine.



Figure 2.6 Lock stitch machines

Machine specification:

- Model No: DDL-5530N
- Group: lock stitch (interlacement)
- Manufacturing company brand: Juki
- Country of origin: Japan
- Stitch per minute: 1500-5000
- Needle size: 9,11,14,16,18,20,21
- Thread per inch: 2.5”
- Needle per inch: DB*1
- Needle no-1
- Seam class: super imposed, bound, lapped
- Stitch class: 300

Features of Lock stitch machine:

1. Stitches are produced by interlocking
2. Bobbin and bobbin case are present
3. Threads are supplied from cone and It has only one needle.
4. It has different types of feed mechanism

Adjustment points and main parts:

1. Thread
2. Tensioner
3. Needle
4. Stitch density
5. Bobbin
6. Needle bar
7. Pressure foot
8. Feed dog
9. Pressure feed guide
10. Needle plate
11. Spindle
12. Bobbin case
13. Bobbin
14. Paddle
15. Side plate
16. Machine pulley

Function: For sewing light and heavy fabrics i.e. all kinds of plain sew.

Maintenance: can be of different types. But following types are important in this aspect.

Routine maintenance: Lubrication and regular inspection are the constituents of routine maintenance. Lubrication ensures long life and safe working of all the equipment's. Inspection tries to detect faults in equipment's so that repairs and replacements may be undertaken at the right time.

Schedule maintenance: This type of maintenance provides for inspection, overhaul, lubrication and servicing of the machine at predetermined dates. Overhauling of machine, cleaning of all components is normally done on this machine. It involves opening of the machine into its smallest components and carry out lubrication.

Setting: The setting of the lock stitch machine is of immense importance. Folding setting points needs to be ensured before running the machine.

1. **Stitch density controller:** Its controls the no of stitches per inch. Before starting the machine, stitches per inch is determined by rotating the knob and fixing it at the desired position.
2. **Motor:** Motor rpm depicts the speed of the machine. The rpm is controlled by tightening or losing the belt over machine and motor pulley.
3. **Needle:** Needle undergoes accurate setting to ensure proper sewing. Needle is attached by means of a screw which needs to be tightened enough to produce easy sewing. Again, the needle size is also important from fabric point of view.
4. **Pressure foot:** The type of pressure foot to be used and its proper setting is important, which is ensured by proper attachment with the moor through machine pulley.

5. **Feed dog:** It is often found that due to random working the feed dog is subjected to be loose which may cause accident also. Thus, the feed dog must be set properly with the screw.

Replacement: is revealed when the relation of equipment is no more remains an economical proposition. A replacement is affected when the equipment is subjected to complete breakage which cannot used even after repair or the components has become so obsolete that affects production or it has crossed its expiry date. Replacement can be needle, pressure Foot, feed dog etc. undergo frequent replacement.

Precautions:

Following precautions must be taken when repair, setting maintenance or replacement is carried out in the lock stitch machine.

- All repair and maintenance work must be carried out by switching off the machine.
- Right tools should be used at right place.
- Skilled personnel should be involved for specialized job.
- Careful handling of all the components is necessary.
- The components should not be too tight or too loose.

Conclusion: It can also be called plain stitch machine. Here different sizes of needles can be used as per requirements. This machine is mostly used in our garments industries. It has also given us a basic knowledge on maintenance of lock stitch machine. The knowledge of this experiment will be very much helpful in our future practical life.

2.5.2 Overlock stitch machine minor maintenance and repair

An overlock stitch sews over the edge of one or two pieces of cloth for edging, hemming or seaming. Usually an overlock sewing machine will cut the edges of the cloth as they are fed through (such machines are called ‘sergers’), though some are made without cutters. The inclusion of automated cutters allows overlock machines to create finished seams easily and quickly. The overlock machine is different from the lockstitch sewing machine, cut the edge of fabrics, and cover two parts of fabrics by stitching. Overlocking is also referred to as ‘overedging’, ‘merrowing’ or ‘serging’. Though ‘serging’ technically refers to overlocking with cutters, in practice the four terms are used interchangeably. Overlock stitches are extremely versatile, as they can be used for decoration, reinforcement or construction.

Objectives:

- To know the repair procedure of different components used in over lock sewing machine.
- To lean the way of maintenance of the over lock sewing machine for its longer life.
- To know the different setting points of the over edge stitch machine.
- To gather knowledge on how and when the replacement needs to be carried out.
- To acquit ourselves with various machinery tools.



Figure 2.5 Overlock stitching machine

Apparatus: Flat screw driver, Star screw driver, Hammer, Pliers, Lubricating oil and Grease.

Procedure: The Repair, maintenance, setting and replacement procedure of overlock sewing machine are described in below-

Repair: is carried out when a component requires slight modification. To carry out such job the machine needs to be switched off first. The component under repair is then screwed off by suitable apparatus. After repairing the part is fixed to its designed place and hence its correctness I measured by running the machine. In an over edge sewing machine looper, presser foot, tensioner, check spring, motor belt etc can undergo repair job.

Maintenance: Maintenance of overlock sewing machine can be of different types. But following types are important in this aspect

A. **Routine maintenance:** Lubrication and regular inspection are the constituents of routine maintenance. Lubrication ensures long life and safe working of all the equipment's. Inspection tries to detect faults in equipment's so that repairs and replacements may be undertaken at the right time.

B. **Schedule maintenance:** This type of maintenance provides for inspection, overhaul, lubrication and servicing of the machine at predetermined dates. Overhauling of machine, cleaning of all components is normally done on this machine. It involves opening of the machine into its smallest components and carry out lubrication.

Setting: The setting of the over edge stitch machine is of immense importance. Folling setting points needs to be ensured before running the machine.

1. **Needle:** Needle undergoes accurate setting to ensure proper sewing. Needle is attached by means of a screw which needs to be tightened enough to produce easy sewing. Again, the needle size is also important from fabric point of view. In this machine, one or two needles may be used and it may be 3 thread, 4 thread or 5 thread machines.
2. **Stitch density controller:** Its controls the no of stitches per inch. Before starting the machine, stitches per inch is determined by rotating the knob and fixing it at the desired position.
3. **Pressure foot:** The type of pressure foot to be used and its proper stetting is important, which is ensured by proper attachment with the moor through machine pulley.
4. **Tensioner:** Proper stitching depends on appropriate tension on sewing thread. The tensioner is defective and if it is not properly adjusted then the stitch may be tight or loose or the sewing thread may be break down, so, tensioners are to be adjusted properly, in this machine three or more thread may be used. so, her more tensioning device is used.
5. **Motor:** Motor rpm depicts the speed of the machine. The rpm is controlled by tightening or losing the belt over machine and motor pulley.

Replacement: the replacement is revealed when the relation of equipment is no more remains an economical proposition. A replacement is affected when the equipment is subjected to complete breakage which cannot use even after repair or the components has become so obsolete that affects production or it has crossed its expiry date.

Conclusion: Over lock stitching machine is necessary for stitching garments fabric. By doing this experiment, we can know about the various parts of the machine and its parts setting and its working procedure. We can learn its repairing procedure also. So, we have learned about this machine mechanism properly and maintain proper lubrication for smooth operation.

2.3 Adjust machine moving part

Adjusting machine moving parts in garment is an important part of regular maintenance. By properly adjusting moving parts, garment factories can help to prevent accidents and injuries, improve the efficiency of operations, and extend the lifespan of their machinery and equipment.

Here are some general tips for adjusting machine moving parts in garment:

- Identify the machine moving parts that need to be adjusted. This information can be found in the manufacturer's instructions for the machinery and equipment.
- Use the tools recommended by the manufacturer. Using the wrong tools can damage the machinery and equipment.
- Follow the manufacturer's instructions for adjusting the machine moving parts. This will help to ensure that the parts are adjusted correctly and that the machinery and equipment is safe to operate.
- Test the machinery and equipment after adjusting the moving parts. This will help to ensure that the parts have been adjusted correctly and that the machinery and equipment is operating properly.
- Adjusting common machine moving parts in garment:
  I. **Sewing machine needle:** example Adjust the needle position so that it is centered in the needle hole. Adjust the needle thread tension so that the stitches are balanced and not too tight or too loose.
  II. **Sewing machine presser foot:** Adjust the presser foot pressure so that it provides enough pressure to feed the fabric through the machine without damaging it.
  III. **Cutting machine blade:** Adjust the cutting machine blade so that it is sharp and aligned correctly.
  IV. **Pressing machine:** Adjust the pressing machine temperature and pressure so that it is appropriate for the type of fabric being pressed.

By following these tips, garment factories can help to ensure that their machine moving parts are properly adjusted, which will help to prevent accidents and injuries, improve the efficiency of operations, and extend the lifespan of their machinery and equipment. It is important to note that adjusting machine moving parts can be dangerous if not done correctly. If you are unsure about how to adjust a machine moving part, it is always best to consult a qualified technician.

2.5.1 Adjustments safety materials

Adjustments of a limited nature including safety guards, stops, wear pads and tool holders, nipping up glands and adjustment of scrapers and aprons in garment are all important tasks that can help to ensure the safety and efficiency of garment machinery and equipment.

A. **Safety guards**: - are essential for preventing accidents and injuries. It is important to make sure that all safety guards are in place and working properly. This may involve adjusting the guards to ensure that they are properly aligned and that they do not interfere with the operation of the machinery and equipment.

B. **Stops**: - used to prevent machinery and equipment from moving too far. It is important to make sure that all stops are properly adjusted. This may involve adjusting the stops to ensure that they are in the correct position and that they are strong enough to stop the machinery and equipment from moving too far.

C. **Wear pads**: - is are used to protect machinery and equipment from wear and tear. It is important to make sure that all wear pads are in place and in good condition. This may involve adjusting the wear pads to ensure that they are properly aligned and that they are not too worn.

D. **Tool holders**:- is are used to hold tools in place while they are being used. It is important to make sure that all tool holders are properly adjusted. This may involve adjusting the tool holders to ensure that they are in the correct position and that they hold the tools securely.

E. **Nipping up glands**: - used to seal openings in machinery and equipment. It is important to make sure that all glands are properly nipped up. This may involve adjusting the glands to ensure that they are tight enough to prevent leaks, but not so tight that they damage the machinery and equipment.

F. **Adjustment of scrapers and aprons**:- Scrapers and aprons are used to remove dirt and debris from machinery and equipment. It is important to make sure that all scrapers and aprons are properly adjusted. This may involve adjusting the scrapers and aprons to ensure that they are in the correct position and that they are making contact with the machinery and equipment.

SELF-CHECK 02

Name: _____ **Date:** _____

Test: Short Answer Questions

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers. You are provided 6 minute for each question and each point has 2 Points.

1. When it is necessary to change lubricants of garment machinery?
2. List five consumable components of sewing machine?
3. What is the difference between routine and schedule maintenance?
4. What is the main function of pressure foot?
5. List down the steps of oiling the sewing machine?

OPERATIONAL SHEET 01

Operation Title:	**Perform minor machine repair**
Purpose:	To show how to identify adjust minor problem
Conditions or Situations for The Operation:	Trainees should know how to identify and adjust minor problems and different tools and uses.
Equipment, Tools and Materials:	use different maintenance tools if necessary
Precautions:	Use the right tools when required
Quality Criteria:	- All steps were completed in the correct sequence, - The machine should operate correctly Your work should be neat and accurate

PROCEDURES:

STEPS

Adjusting Presser foot pressure

1. Loosen nut (2). As you tum presser spring regulator (1) clockwise (indirection A), the presser foot pressure will be increased.
2. As you tum the presser spring regulator counterclockwise (in direction B), the pressure will be decreased.
3. After adjustment, tighten nut (2).
4. Generally, the standard height of the presser spring regulator is 29 to 32 mm.

Adjusting Thread take up spring tension

1. Changing the stroke of thread take-up spring (1)
   A. Loosen Setscrew (2).
   B. As You Turn Tension Post (3) Clockwise (In Direction A), The Stroke Of The Thread Take-Up Spring Will Be Increased.
   C. As You Turn Tension Post (3) Counterclockwise (In Direction B), The Stroke Will Be Decreased.
2. Changing the pressure of thread take-up spring (1)
   A. Loosen setscrew (2), and remove tension assembly.
   B. Loosen setscrew (4).

C. As you turn tension post (3) clockwise (in direction A), the pressure will be increased.

D. As you turn the post counterclockwise (in direction B), the pressure will be decreased

Adjusting Needle thread tension

1. As you tum thread tension No.1 nut (1) clockwise (in direction (A)), the thread remaining on the needle after thread trimming will be shorter.
2. As you tum nut (1) Counterclockwise (in direction (B)), the thread length will be longer.
3. As you turn thread tension No.2 nut clockwise (in direction (C)), tension will be increased.
4. As you tum nut (2) counterclockwise (in direction (D)), the needle thread tension will be decreased.

Adjusting bobbin thread tension

1. As you tum tension adjust screw (3) clockwise (in direction (E)), the bobbin thread tension will be increased
2. As you tum screw (3) counterclockwise (in direction (F)), the bobbin thread tension will be decreased

Adjusting stitch length

1. Tum stitch length dial (1) in the direction of the arrow, and align the desired number to marker dot A on the machine arm.
2. The dial calibration is in millimeters.
3. When you want to decrease the stitch length, turn stitch length dial (1) while pressing feed lever (2) in the direction of the arrow.

Adjusting height of pressure bar

1. Loosen setscrew (1), and adjust the pressure bar height and the angle of the presser foot.
2. After adjustment, securely tighten the setscrew.

Adjusting needle thread supply

1. When sewing heavy leathers, move thread guide (1) to the left in direction A to increase the length of thread pulled out by the thread take up.
2. When sewing light leathers, move thread guide (1) to the right in direction B to decrease the length of the thread pulled out by the thread take up.

Adjusting needle thread supply

1. The standard height of the presser foot lifted using the knee lifter is 10 mm.
2. You can adjust the presser foot lift up to 13mm using knee lifter adjust screw (1)
3. When you have adjusted the presser foot lift to over 10mm , be sure that the bottom end of needle bar (2) in its lowest position does not hit presser foot (3).

Adjusting feed timing

1. To obtain the standard feed timing, align setscrew (A) on feed eccentric cam (1) with setscrew (B) on main shaft thrust collar (2)
2. To make adjustment, loosen two setscrews (3) to release the feed eccentric cam, Properly position the eccentric cam. Then retighten the setscrews.
3. To advance the feed timing in order to prevent uneven material feed, move the feed eccentric cam in the direction of the arrow
4. To delay the feed timing in order to increase stitch tightness, move the feed eccentric cam in the opposite direction from the arrow.
5. Be careful not to move the feed eccentric cam too far, or else needle breakage may result.

Adjusting needle stop position

Stop position after thread trimming

1. The standard needle stop position is obtained by aligning red marker dot (A) on the machine arm with white marker dot (B) on the hand wheel.
2. Stop the needle in its highest position, loosen screw (1) to perform adjustment within the slot of the screw
   - The needle stop timing is advanced if you move the screw in direction(C)
   - The needle stop timing is delayed if you move the screw in direction (D)

Precaution

(1) The needle stop timing is advanced if you move the screw in direction(C)

(2) The needle stop timing is delayed if you move the screw in direction (D)

Do not operate the machine with screw (1) loosened. Just loosen the screw, and do not remove it.

Lower stop position

A. The lower needle stop position when the pedal is returned to the neutral position after the front part of the pedal is depressed can be adjusted as follows:
   - Stop needle (1) in its lowest position, loosen screw (2), and make adjustment within the slot of the screw.
   - Moving the screw in direction (A) advances the needle stop timing.
   - Moving the screw in direction (B) delays the timing

Precaution

Do not operate the machine with screw (2) loosened. Just loosen the screw, and do not remove it.

LAB TEST

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Minor machine repair for the given sewing machine.

Task 1 Adjust stitch length for the given sewing machine.

Task 2 Adjust bobbin threads tension for the given sewing machine.

Task 3 Adjust needle thread tension for the given sewing machine.

Task 4 Adjust Presser foot pressure for the given sewing machine.

UNIT THREE: Basic Preventive Maintenance of tools

This unit to provide you the necessary information regarding the following content coverage and topics:

- Basic preventive maintenance
- Machine failure
- Machine/equipment failure
- Clean operations
- Accomplish necessary report

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

- Identify basic preventive maintenance
- Check machine failure
- Report machine/equipment failure
- Clean operations
- Report accomplish necessary

3.1 Concept of basic preventive maintenance

Basic preventive maintenance in garment is the practice of regularly inspecting and servicing machinery and equipment to prevent problems from occurring. This can help to reduce downtime, improve efficiency, and extend the lifespan of assets, some common basic preventive maintenance tasks in garment include:

1. Cleaning and lubricating machinery and equipment
2. Inspecting for wear and tear
3. Replacing worn or damaged parts
4. Adjusting machine settings
5. Testing safety device

Basic tools for preventive maintenance

- Screwdrivers
- Wrenches
- Pliers
- Allen wrenches
- Oil cans
- Grease guns
- Rags
- Flashlight
- Safety glasses

There are many benefits to implementing a basic preventive maintenance program, including:

A. Reduced downtime
B. Improved efficiency
C. Extended lifespan of assets
D. Reduced maintenance costs
E. Improved product quality
F. Reduced risk of accidents and injuries

To implement a basic preventive maintenance program

1. Identify the machinery and equipment that needs to be maintained.
2. Determine the frequency of maintenance for each piece of machinery and equipment.
3. Develop a checklist of maintenance tasks for each piece of machinery and equipment.
4. Assign maintenance tasks to qualified personnel.
5. Schedule maintenance tasks and track progress.
6. Review the maintenance program regularly and make adjustments as needed.

3.2 Identify machine failure

Here are a number of ways to identify machine failure in garment. Some of the most common signs include:

1. **Unusual noises:** If a machine is making unusual noises, it may be a sign that there is a problem. For example, a grinding noise may indicate that there is a problem with the bearings, while a squealing noise may indicate that there is a problem with the belts.
2. **Vibration:** Excessive vibration can also be a sign of machine failure. For example, if a sewing machine is vibrating more than usual, it may be a sign that the needle is bent or that the machine is not properly balanced.
3. **Smoke or sparks:** Smoke or sparks coming from a machine are a clear sign that there is a problem. This could be due to an electrical short circuit, a problem with the bearings, or a fire.
4. **Leaks:** Leaks of oil, hydraulic fluid, or other fluids can also be a sign of machine failure. These leaks can damage the machine and create a safety hazard.
5. **Reduced performance:** If a machine is not performing as well as it used to, it may be a sign that there is a problem. For example, if a sewing machine is skipping stitches or if a cutting machine is not cutting through the fabric properly, it may be a sign that the machine needs to be serviced.

In addition to these general signs, there may be specific signs of machine failure that are unique to certain types of machinery. For example, if a sewing machine is not feeding the fabric properly, it may be a sign that there is a problem with the presser foot or the feed dogs. If you notice any of these signs of machine failure, it is important to stop the machine immediately and have it inspected by a qualified technician. Ignoring the signs of machine failure can lead to further damage to the machine and create a safety hazard.

Identifying machine failure in garment:

- Inspect machinery and equipment regularly. Look for any signs of wear or tear, such as cracks, chips, or loose parts.
- Listen for unusual noises or vibrations. If you hear or feel anything out of the ordinary, stop the machine and have it inspected.

- Be aware of the signs of fluid leaks. If you see any leaks of oil, hydraulic fluid, or other fluids, stop the machine and have it inspected.
- Monitor machine performance. If a machine is not performing as well as it used to, it may be a sign that there is a problem.
- Report any concerns to your supervisor immediately.

3.3 Report machine/equipment failure

There are a number of ways to identify machine failure in garment. Some of the most common signs include:

A. Unusual noises: If a machine is making unusual noises, it may be a sign that there is a problem. For example, a grinding noise may indicate that there is a problem with the bearings, while a squealing noise may indicate that there is a problem with the belts.
B. Vibration: Excessive vibration can also be a sign of machine failure. For example, if a sewing machine is vibrating more than usual, it may be a sign that the needle is bent or that the machine is not properly balanced.
C. Smoke or sparks: Smoke or sparks coming from a machine are a clear sign that there is a problem. This could be due to an electrical short circuit, a problem with the bearings, or a fire.
D. Leaks: Leaks of oil, hydraulic fluid, or other fluids can also be a sign of machine failure. These leaks can damage the machine and create a safety hazard.
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- Inspect machinery and equipment regularly. Look for any signs of wear or tear, such as cracks, chips, or loose parts.

- Listen for unusual noises or vibrations. If you hear or feel anything out of the ordinary, stop the machine and have it inspected.
- Be aware of the signs of fluid leaks. If you see any leaks of oil, hydraulic fluid, or other fluids, stop the machine and have it inspected.
- Monitor machine performance. If a machine is not performing as well as it used to, it may be a sign that there is a problem.
- Report any concerns to your supervisor immediately.

3.2 Performing Cleaning operations

Performing cleaning operations in garment is essential for maintaining a clean and safe work environment. It also helps to extend the lifespan of machinery and equipment and improve the quality of finished products.

- Identify the areas and equipment that need to be cleaned. This will vary depending on the specific garment factory and the types of machinery and equipment that are used.
- Choose the appropriate cleaning methods and materials. This will depend on the type of dirt and debris that needs to be removed, as well as the materials that are being cleaned.
- Follow the manufacturer's instructions for cleaning machinery and equipment. This will help to prevent damage and ensure that the equipment is cleaned properly.
- Wear appropriate personal protective equipment (PPE) when cleaning. This may include gloves, safety glasses, and a respirator.
- Floors: Sweep and mop floors regularly to remove dirt, dust, and debris. Be sure to clean under machinery and equipment.
- Machinery and equipment: Clean machinery and equipment regularly according to the manufacturer's instructions. This may involve using a vacuum cleaner, a brush, or a cloth to remove dirt, dust, and debris. You may also need to use a cleaning solution to remove grease and grime.
- Sewing machines: Pay special attention to the needle, bobbin case, and feed dogs when cleaning sewing machines. These areas can easily become clogged with lint and thread, which can cause problems with the machine.
- Cutting machines: Clean cutting machines regularly to remove fabric dust and lint. Be sure to clean the blades and other moving parts.

- Pressing machines: Clean pressing machines regularly to remove fabric dust and lint. Be sure to clean the heating element and the pressing plate.

In addition to cleaning areas and equipment, it is also important to clean and organize workspaces. This will help to create a safe and efficient work environment.

A. Keep workspaces free of clutter. This includes removing any unnecessary materials and tools.
B. Organize materials and tools so that they are easy to find and use.
C. Clean and disinfect work surfaces regularly.
D. Dispose of waste properly.

3.4 Accomplish necessary report

Accomplishing necessary reports in garment is essential for tracking progress, identifying areas for improvement, and making informed decisions. There are a variety of different reports that may be needed in a garment factory, such as:

1. **Production reports:** These reports track the quantity and quality of garments produced.
2. **Inventory reports:** These reports track the quantity and value of raw materials, work-in-progress, and finished goods.
3. **Financial reports:** These reports track the financial performance of the garment factory.
4. **Quality control reports:** These reports track the quality of garments produced and identify any areas for improvement.
5. **Maintenance reports:** These reports track the maintenance of machinery and equipment.

The specific reports that are needed will vary depending on the size and complexity of the garment factory. However, there are some general tips for accomplishing necessary reports in garment:

A. Identify the reports that are needed. This can be done by consulting with management and other employees to determine what information is needed to make informed decisions.
B. Gather the necessary data. This data can be collected from a variety of sources, such as production records, inventory records, financial records, and quality control records.
C. Analyze the data. Once the data has been gathered, it needs to be analyzed to identify trends and patterns. This can be done using a variety of methods, such as statistical analysis and charting.

D. Write the report. The report should be clear, concise, and easy to understand. It should include the following information:

- The purpose of the report
- The data that was analyzed
- The findings of the analysis
- Any recommendation

It is important to review reports regularly to ensure that they are accurate and up-to-date. Reports can also be used to identify areas for improvement and make informed decisions.

1. Use a report template. A report template can help you to save time and ensure that your reports are complete and consistent.
2. Automate the report generation process. If possible, automate the report generation process to save time and reduce errors.
3. Share reports with relevant stakeholders. Be sure to share reports with the relevant stakeholders, such as management, supervisors, and other employees.
4. Use reports to improve performance. Use reports to identify areas for improvement and make informed decisions.

SELF-CHECK 03

MULTIPLE CHOICES

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

1. Which of the following are benefits of implementing a basic preventive maintenance program in the garment industry? Please select all that apply:

A. Reduced downtime
B. Improved efficiency
C. Reduce lifespan of assets
D. Reduced maintenance costs
E. Improved product quality

1. Which one of the following points to remember while oiling sewing machine?(2 point)

A. Before oiling, ensure that the sewing machine is turned off.
B. Oil the machine using the directions given in the machine manual.
C. Locate oil holes of the sewing machine.
D. All

2. Which of the following is NOT a common basic preventive maintenance task in apparel?

A. Cleaning and lubricating machinery and equipment
B. Replacing worn or damaged parts
C. Adjusting machine settings
D. Operating machinery without proper guarding

3. Which of the following are general tips for accomplishing necessary reports in the garment industry?

A. Identify the reports that are needed
B. Gather the necessary data
C. Write the report
D. All the above

5. Which of the following can NOT common signs of machine failure in the garment industry?

A. Unusual noises
B. Smoke or sparks
C. Monitor machine performance
D. Reduced performance

Part II. Say True or False

1. A basic preventive maintenance program in apparel can help to reduce downtime and improve efficiency.
2. A clean, well-oiled sewing machine is essential for good output and safety.
3. Sewing defects must be obtained through the preventive maintenance of the industrial sewing machines respectively.
4. Performing cleaning operations in garment is essential for maintaining a clean and safe work environment.
5. After properly cleaning these areas, reassemble all the parts of the sewing machine and run it. If reassembled correctly, it should run smoothly.
6. Accomplishing necessary reports in garment is essential for tracking progress

Operational Sheet 03

Operation Title	Replace oiling and Lubricants
Purpose	To show how to replace the fluid and lubricants
Conditions/Situations for the Operation	Trainees should know the technique of replacing lubricants of machine.
Equipment, Tools and Materials	Different types of lubricant etc…
Precautions	When you first operate your machine after set up or after an extended period of disuse, run your machine at 3,000 s.p.m. to 3,500 s.p.m. for about 10 minutes for the purpose of break-in.
Quality Criteria	- All steps were completed in the correct sequence, - The machine lubricate and operate correctly, - The amount and choice of lubricant should be correct. Your work should be neat and accurate

PROCEDURES:

STEPS

1. Fill oil pan (1) with sewing machine oil up to HIGH mark A.
2. When the oil level lowers below LOW mark B, refill the oil pan with the specified oil.
3. When you operate the machine after lubrication, you will see splashing oil through oil sight window (2) if the lubrication is adequate.
4. Adjust the amount of oil supplied to the thread take-up and needle bar crank (2) by turning adjust pin (1).
5. The minimum amount of oil is reached when marker dot A is brought close to needle bar crank (2) by turning the adjust pin in direction B
6. The maximum amount of oil is reached when marker dot A is brought to the position just opposite from the needle bar crank by turning the adjust pin in direction C

LAB TEST

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Replace oiling and Lubricants for the given industrial sewing machine

Task 1 Apply OHS / maintenance safety

Task 2 Identify sewing machine types of oil and lubricants

Task 3 Adjust the amount of oil supplied to the face plate parts for the given sewing machine.

Task 4 Adjust the amount of oil supplied to the hook for the given sewing machine.

UNIT FOUR : Inventory of machine and Complete work activities

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

- Inventory of Machine
- Inventory control
- Document inventory result
- Machineries, tools and equipment safely

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

- Identify Inventory of Machine
- Perform inventory control machineries
- Document and Record inventory results
- Store machineries, tools and equipment

4.1 Concepts of Inventory of Machine

Inventory is the term used to describe the goods and materials that a business holds for the ultimate goal of resale, production or utilization. Inventory management is a discipline primarily about specifying the shape and placement of stocked goods.

An inventory of machineries in garment is a list of all of the machinery and equipment that is used in a garment factory. This includes sewing machines, pressing machines, cutting machines, and other specialized equipment. An inventory of machineries can be used for a variety of purposes, such as:

- Tracking the location and condition of machinery and equipment
- Scheduling maintenance and repairs
- Identifying and replacing outdated or damaged machinery and equipment
- Making budgeting decisions

4.1.1 Steps of performing an inventory of machineries

1. Identify all of the machinery and equipment that is used in the garment factory.
2. Gather information about each machine and equipment, such as its make, model, serial number, condition, and location.
3. Record the information in a spreadsheet or database.
4. Analyze the inventory data to identify any trends or patterns. For example, are there any machines that are frequently out of service? Are there any machines that are nearing the end of their lifespan?
5. Develop a plan to address any issues. This may involve repairing or replacing machines, or developing a preventive maintenance program.

Some of the benefits of having an accurate and up-to-date inventory of machineries in garment.

A. **Improved efficiency:** By tracking the location and condition of machinery and equipment, garment factories can avoid downtime and delays. This can lead to improved efficiency and increased productivity.

B. **Reduced costs:** By identifying and replacing outdated or damaged machinery and equipment, garment factories can reduce maintenance and repair costs.

C. **Improved quality**: By having properly maintained and calibrated machinery and equipment, garment factories can produce high-quality garments that meet customer expectations.

D. **Enhanced safety:** By following safety procedures and using properly maintained machinery and equipment, garment factories can reduce the risk of accidents and injuries.

4.2 Perform inventory control machineries

Performing inventory in the apparel industry is the process of tracking and managing the flow of raw materials, work-in-progress, and finished goods throughout the apparel manufacturing process. Performing inventory control in garment involves tracking and managing the flow of raw materials, work in progress, and finished goods throughout the garment manufacturing process. This includes tasks such as:

- Identifying and tracking the location of all inventory items. This can be done using a variety of methods, such as barcodes, RFID tags, or manual inventory tracking systems.
- Managing inventory levels to ensure that there is enough stock to meet demand, but not so much that inventory costs are excessive. This involves forecasting demand, setting inventory levels, and placing orders.
- Tracking inventory movements to identify any discrepancies or losses. This includes tracking the receipt and shipment of inventory, as well as the movement of inventory within the garment factory.
- Performing regular inventory audits to ensure that inventory records are accurate. This can be done by manually counting inventory or by using automated inventory counting systems.

Inventory control is important in the garment industry to ensure that garment manufacturers have the materials and products they need to meet demand, while also minimizing inventory costs.

4.2.1 Benefits of Effective Inventory Control in Garment:

1. Reduced inventory costs: Effective inventory control can help garment manufacturers to reduce their inventory costs by reducing the amount of inventory they hold and by optimizing their inventory turnover.
2. Improved production efficiency: Effective inventory control can help garment manufacturers to improve their production efficiency by ensuring that they have the materials they need when they need them.
3. Reduced stock outs: Effective inventory control can help garment manufacturers to reduce stock outs by ensuring that they have enough stock to meet demand.
4. Improved customer service: Effective inventory control can help garment manufacturers to improve their customer service by ensuring that they have the products that their customers want in stock when they want them.
5. Increased profitability: Effective inventory control can help garment manufacturers to increase their profitability by reducing costs, improving production efficiency, and reducing stock outs.

4.2.2 Performing effective inventory control in garment:

- Use a variety of inventory tracking methods. This will help to ensure that inventory is accurately tracked and accounted for.
- Implement a just-in-time inventory system. This will help to reduce inventory costs by minimizing the amount of inventory that is held.
- Use an automated inventory control system. This will help to streamline the inventory control process and improve accuracy.
- Conduct regular inventory audits. This will help to ensure that inventory records are accurate and up-to-date.
- Train employees on inventory control procedures. This will help to ensure that all employees understand the importance of inventory control and how to follow proper procedures.

4.3 Document and Record inventory results

Documenting inventory results in the apparel industry is an important part of inventory control. It helps to ensure that inventory records are accurate and up-to-date, and it can also be used to identify trends and patterns in inventory usage.

There are a variety of ways to document inventory results. Some common methods include:

A. **Inventory reports:** Inventory reports are typically generated using an inventory control system. They provide detailed information about inventory levels, such as the quantity of each item in stock, the location of each item, and the value of each item.

B. **Inventory spreadsheets:** Inventory spreadsheets can be used to manually track inventory levels. They are typically less detailed than inventory reports, but they can be a good option for small businesses or businesses that have a limited budget.

C. Inventory inventory tags: are physical tags that are attached to each inventory item. They typically include information such as the item number, the quantity, and the location.

The best way to document inventory results will vary depending on the size and complexity of the apparel business. However, it is important to choose a method that is accurate and easy to use

some tips for documenting inventory results in the apparel industry:

- Use a consistent format. This will make it easier to track inventory results over time and to identify trends and patterns.
- Include all relevant information. This may include the item number, the description, the quantity, the location, the value, and the condition.
- Update inventory records regularly. This will ensure that the records are accurate and up-to-date.
- Secure inventory records. Inventory records should be stored in a safe place to prevent unauthorized access.

4.4 Storing machineries, tools and equipment

- Store machineries, tools, and equipment in a clean, dry, and well-ventilated area. This will help to prevent rust, corrosion, and other damage.
- Store machineries, tools, and equipment on level surfaces. This will help to prevent them from tipping over or falling.
- Store machineries, tools, and equipment in a way that is organized and accessible. This will help to prevent accidents and injuries.

SELF-CHECK 04

Multiple choices

1. Which of the following can NOT common methods for documenting inventory results in the garment industry?

A. Inventory reports
B. Inventory spreadsheets
C. Inconsistent format.
D. Inventory tags

2. ---------- is the term used to describe the goods and materials that a business holds for the ultimate goal of resale, production or utilization.

A. Inventory reports
B. Inventory
C. Inconsistent format.
D. Inventory tags

3. Which of the following are purposes of maintaining an inventory of machineries in the garment industry? Please select all that apply:

A. Tracking the location and condition of machinery and equipment
B. Scheduling maintenance and repairs
C. Identifying and replacing outdated
D. All the above

4. Which of the following Can NOT benefits of effective inventory control in the garment industry?

A. Reduced inventory costs
B. Improved production efficiency
C. Increase stock outs
D. Improved customer service
E. Increased profitability

5. Which of the following are strategies for performing effective inventory control in the garment industry?

A. Use a variety of inventory tracking methods
B. Implement a just-in-time inventory system
C. Use an automated inventory control system
D. Conduct regular inventory audits
E. All the above

SHORT ANSWER QUESTIONS

1. What are some benefits of implementing a basic preventive maintenance program in the garment industry?
2. List the steps of performing an inventory of machineries
3. Explain storing machineries, tools and equipment on garment factory**?**
4. What is inventory control in the garment industry**?**
5. Why documenting inventory is results important in the apparel industry?

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