

BASIC MACHINE OPERATIONS

TALMO101

Perform Basic Machine Operations

Competence

REQF Level: 1

Credits: 6

Sector: Arts & Crafts

Sub-sector: Tailoring

Learning hours



60

Issue date: December, 2020

Purpose statement

This module describes the skills, knowledge and attitudes required to perform basic machine operations. At the end of this module, participants will be able to set up a sewing machine and overlocker, interpret and set up different functions and accessories thereof, test its operations and take corrective measures where necessary, according to manufacturer's instructions and company procedures.

Learning assumed to be in place

Not applicable

Elements of competency and performance criteria

Learning units describe the essential outcomes of a competency.

Performance criteria describe the required performance needed to demonstrate achievement of the learning unit.

By the end of the module, the trainee will be able to:

Elements of competence	Performance criteria
1. Set up machines	1.1 Correct selection and setting up of machine in accordance with manufacturing instructions 1.2 Correct interpretation and set up of machine functions in relation to the fabric, stitch type and design requirements 1.3 Proper selection and set up of machine accessories required according to the design specifications accordance with the job requirement
2. Test machine and ensure machine outputs are met	2.1 Thorough selection of materials to be used for sampling according to the design proposed 2.2 Careful operation of machine in accordance with manufacturer's and company instructions to produce a specified sample. 2.3 Accurate testing and organization of machine performance in accordance with company procedures to ensure required standards of quality
3. Re-adjust machine setting to meet requirements	3.1 Correct interpretation of test results to determine adjustment requirements in accordance with expected results 3.2 Proper assessment of adjustment changes in accordance with product and machine specifications 3.3 Proper maintenance of records and reports in accordance with the company procedures

Learning unit

Learning unit 1: Set up machines



1

25 Hours



Learning Outcomes:

1. Select and set up machine
2. Interpret and set up machine functions
3. Set up machine accessories

Learning Outcome 1.1: Select and set up machine

Content	Learning activities	Resources
<ul style="list-style-type: none">• Different types of machines<ul style="list-style-type: none">✓ Sewing machine✓ Domestic✓ Industrial straight stitch✓ Overlocker✓ Press machine• Getting to know the different machines<ul style="list-style-type: none">✓ Interpretation of the sewing machine manuals✓ The different parts of a sewing machines✓ Speed control✓ How to use sewing guides on a machine✓ What are feed dogs?✓ How to thread a machine	<ul style="list-style-type: none">✓ Teacher demonstrations✓ Observation of setting up different machines✓ Individual practical exercise of setting up different machines✓ Individual exercise to identify the different needles and machine parts	<ul style="list-style-type: none">- Machine user manual- Notebook- Images- Videos- Different types of sewing machines- Machine needles- Different feet- Pen- Paper- Machine accessories- Test fabric- Screwdriver set- Threads- Tweezers

✓ Using the best quality thread for your machine

Know your needles

✓ Universal needles

✓ Stretch needles

✓ Denim needles

• ✓ Microtex / Sharps needles

✓ Leather needles

✓ Embroidery needles

✓ Twin needles

✓ Jersey needles

Formative Assessment 1.1



Performance criterion

Correct selection and setting up of machine in accordance with manufacturing instructions

The assessor may collect any of the following evidences and make judgement if the performance criterion has been achieved.

Types of evidence

Portfolio assessment tools

- ✓ Performance evidence
- ✓ Product evidence
- ✓ Verbal evidence

- ✓ Assessor's observation list to assess the setting up of different machines
- ✓ Multiple questions
- ✓ Matching questions
- ✓ Set up machines
- ✓ Assessor's completed checklist

Checklist	Score	
	Yes	No
Indicator 1: Different types of machines are properly understood		
✓ Sewing machine		
- Domestic		
- Industrial straight stitch		
✓ Overlocker		
✓ Press machine		
Indicator 2: The set-up of the different machines is properly understood and done		
✓ The sewing machine manual is correctly interpreted		
✓ The different parts of a sewing machine		
✓ Speed control		
✓ How to use sewing guides on a machine		
✓ What are feed dogs?		
✓ How to thread a machine		

✓ Using the best quality thread for your machine		
Indicator 3: The different needle types and their uses are accurately identified		
✓ Universal needles		
✓ Stretch needles		
✓ Denim needles		
✓ Microtex / Sharps needles		
✓ Leather needles		
✓ Embroidery needles		
✓ Twin needles		
✓ Jersey needles		
Observation		

Learning Outcome 1.2: Interpret and set up machine functions

Content

- Setting up the industrial straight stitch machine for standard functioning
 - ✓ Threading a bobbin
 - ✓ Inserting a bobbin in a bobbin case
 - ✓ Inserting a bobbin case into the machine
 - ✓ Threading the machine
 - ✓ Setting the tension
 - ✓ Controlling the speed
- Setting up other machines
 - ✓ Domestic sewing machine
 - ✓ Overlocker
 - ✓ Press machine

Learning activities

- ✓ Teacher demonstrations of setting up the machine functions
- ✓ Practical exercise to set up different machine functions on different machines

Resources

- Machine user manual
- Notebook
- Images
- Videos
- Different types of sewing machines
- Machine needles
- Different feet
- Pen
- Paper
- Machine accessories
- Test fabric
- Screwdriver set
- Threads
- Tweezers

Formative Assessment 1.2



Performance criterion

Correct interpretation and set up of machine functions in relation to the fabric, stitch type and design requirements

The assessor may collect any of the following evidences and make judgements if the performance criterion has been achieved.

Types of evidence

- ✓ Practical evidence
- ✓ Verbal evidence
- ✓ Performance evidence

Portfolio assessment tools

- ✓ Assessor’s observation list to assess the setting up of different functions on different machines
- ✓ Assessor’s completed checklist
- ✓ Open questions

Checklist	Score	
	Yes	No
Indicator 1: Setting up the industrial straight stitch machine for standard functioning is accurately done		
✓ Threading a bobbin		
✓ Inserting a bobbin in a bobbin case		
✓ Inserting a bobbin case into the machine		
✓ Threading the machine		
✓ Setting the tension		
✓ Controlling the speed		
Indicator 2: Setting up of other machines are properly done according to their set up requirements		

✓ Domestic sewing machine		
✓ Overlocker		
✓ Press machine		
Observation		

Learning Outcome 1.3: Set up machine accessories

Content	Learning activities	Resources
<ul style="list-style-type: none"> • What is a presser foot and its function? <ul style="list-style-type: none"> ✓ Straight stitch ✓ Zig zag ✓ Zipper foot ✓ Invisible zipper foot ✓ Adjustable zipper foot ✓ Buttonhole foot ✓ Button sewing foot ✓ Satin stitch foot ✓ Edge stitching foot • Other sewing machine accessories <ul style="list-style-type: none"> ✓ Seam guide ✓ Screw drivers 	<ul style="list-style-type: none"> ✓ Teacher demonstrations of setting up different machine accessories on different machines ✓ Individual performance to setting up different machine accessories on different machines 	<ul style="list-style-type: none"> - Machine user manual - Notebook - Images - Videos - Different types of sewing machines - Machine needles - Different feet - Pen - Paper - Machine accessories - Test fabric - Screwdriver set - Threads - Tweezers

Formative Assessment 1.3



Performance criterion

Proper selection and set up of machine accessories required according to the design specifications accordance with the job requirement

The assessor may collect any of the following evidences and make judgements if the performance criterion has been achieved.

Types of evidence

- ✓ Performance evidence
- ✓ Practical evidence
- ✓ Product evidence

Portfolio assessment tools

- ✓ Assessor's observation list to assess the setting up of different accessories on different machines
- ✓ Assessor's completed checklist
- ✓ Set up machines

Checklist	Score	
	Yes	No

Indicator 1: Different presser feet and their functions are properly understood and attached

✓ Straight stitch

✓ Zig zag

✓ Zipper foot

✓ Invisible zipper foot

✓ Adjustable zipper foot

✓ Buttonhole foot

✓ Button sewing foot

✓ Edge stitching foot

Indicator 2: Other sewing machine accessories are accurately attached

✓ Binder

✓ Seam guide

✓ Screw drivers

Observation

Learning unit



2

Learning unit 2: Conduct sample run and ensure test machine outputs are met

Learning Outcomes:

1. Select materials to be used for sampling
2. Operate the machine
3. Test and organize the machine outputs

20 Hours

Learning Outcome 2.1: Select materials to be used for sampling

Content	Learning activities	Resources
<ul style="list-style-type: none">• Fabrics suitable for an initial test runs on machines<ul style="list-style-type: none">✓ Muslin✓ Calico✓ Cotton• Fabrics to be used for sampling of the correct stitches and tensions<ul style="list-style-type: none">✓ Off-cuts of the actual fabric to be used on the garment✓ Similar fabrics as the actual garment✓ Woven samples for woven fabrics✓ Stretch samples for stretch fabrics	<ul style="list-style-type: none">✓ Teacher guidance✓ Individual exercise to identify and select the right material for sampling	<ul style="list-style-type: none">- Machine user manual- Notebook- Images- Videos- Different types of sewing machines- Machine needles- Different feet- Pen- Paper- Machine accessories- Test fabric- Screwdriver set- Threads- Tweezers

Formative Assessment 2.1



Performance criterion

Thorough selection of materials to be used for sampling according to the design proposed

The assessor may collect any of the following evidences and make judgements if the performance criterion has been achieved.

Types of evidence	Portfolio assessment tools
<ul style="list-style-type: none"> ✓ Product evidence 	<ul style="list-style-type: none"> ✓ Correct choice of fabric samples ✓ Assessor's completed checklist

Checklist	Score	
	Yes	No
Indicator 1: Suitable fabrics for initial sampling are correctly identified		
✓ Muslin		
✓ Calico		
✓ Cotton		
Indicator 2: Fabrics to be used for sampling of the correct stitches and tensions are accurately matched		
✓ Off-cuts of the actual fabric to be used on the garment		
✓ Similar fabrics as the actual garment		
✓ Woven samples for woven fabrics		

✓ Stretch samples for stretch fabrics		
Observation		

Learning Outcome 2.2: Operate the machine

Content

- Operating the machine
 - ✓ Lifting and dropping the needle
 - ✓ Lifting and dropping the foot
 - ✓ Bringing the bobbin thread up to the top
 - ✓ Regular stitching
 - ✓ Basting stitching
 - ✓ Reverse stitching
 - ✓ Changing the presser foot
 - ✓ Controlling the speed
 - ✓ Using seam guides on the machine
 - ✓ Removing a stitched item from the machine
- Understanding different stitch types and lengths for different fabrics and functions
 - ✓ Temporary stitches
 - ✓ Permanent stitches
 - ✓ Decorative stitches
- Performing different stitches on the machine

Learning activities

- ✓ Teacher demonstrations
- ✓ Individual practical exercise of learning how to operate the industrial straight stitch sewing machine
 - Paper exercises:
 - Practice on straight lines
 - Practice on curved lines
 - Practice sewing corners
 - Practice seam allowances on paper with no lines
 - Fabric exercises on 10cm x 15cm fabric pieces:
 - Open seam
 - Closed seam
 - Darts
 - Top stitching / edge stitching
 - French seams
 - Flat felled seams
 - Double turned seams
 - Individual exercise of operating other machines
 - Domestic sewing machine
 - Overlocker
 - Press machine

Resources

- Machine user manual
- Notebook
- Images
- Videos
- Different types of sewing machines
- Machine needles
- Different feet
- Pen
- Paper
- Machine accessories
- Test fabrics
- Screwdriver set
- Threads
- Tweezers
- Iron
- Iron board
- Press cloth
- Water spray bottle

Formative Assessment 2.2



Performance criterion

Careful operation of machine in accordance with manufacturer's and company instructions to produce a specified sample

Assessor may collect among the following types of evidence and make judgements on whether the performance criterion has been achieved.

Types of evidence	Portfolio assessment tools
<ul style="list-style-type: none"> ✓ Performance evidence ✓ Product evidence 	<ul style="list-style-type: none"> ✓ Paper sewing exercises ✓ Fabric exercises of different seams ✓ Assessor's completed checklist

Checklist	Score	
	Yes	No
Indicator 1: Different stitch types and lengths for different fabrics and functions are properly understood		
✓ Temporary stitches		
✓ Permanent stitches		
✓ Decorative stitches		
Indicator 2: Basic machine operations are accurately carried out		
✓ Lifting and dropping the needle		

✓ Lifting and dropping the foot		
✓ Brining the bobbin thread up to the top		
✓ Regular stitching		
✓ Basting stitching		
✓ Reverse stitching		
✓ Changing the presser foot		
✓ Controlling the speed		
✓ Using seam guides on the machine		
✓ Removing a stitched item from the machine		
Indicator 3: Different stitches on the machine are accurately performed		
✓ Paper exercises:		
- Practice on straight lines		
- Practice on curved lines		
- Practice sewing corners		
- Practice seam allowances on paper with no lines		
✓ Fabric exercises on 10cm x 15cm fabric pieces:		
- Open seam		
- Closed seam		
- Darts		
- Top stitching / edge stitching		
- French seams		

- Flat felled seams		
- Double turned seams		
✓ Individual exercise of operating other machines		
- Domestic sewing machine		
- Overlocker		
- Press machine		
Observation		

Learning Outcome 2.3: Test and organize the machine outputs

Content

- How to properly test the different machines
 - ✓ Speed
 - ✓ Tension
 - ✓ Stitch type
 - ✓ Stitch quality
- Common causes for different machine problems and how to fix them
 - ✓ Needles
 - ✓ Clean the machine
 - ✓ Check the top threading
 - ✓ Check the thread quality
 - ✓ Bobbin thread not in the bobbin tension
 - ✓ Wrong bobbin
 - ✓ Needle not high enough
 - ✓ Needle too small for the thread
 - ✓ Nicks in the throat plate

Learning activities

- ✓ Teacher demonstrations
- ✓ Practical exercise of testing the machine outputs
- ✓ Individual write-up of common machine problems and how to fix them

Resources

- Machine user manual
- Notebook
- Images
- Videos
- Different types of sewing machines
- Machine needles
- Different feet
- Pen
- Paper
- Machine accessories
- Test fabric
- Screwdriver set
- Threads
- Tweezers



Performance criterion

Accurate testing and organization of machine performance in accordance with company procedures to ensure required standards of quality

Assessor may collect among the following types of evidence and make judgements on whether the performance criterion has been achieved.

Types of evidence

- ✓ Written evidence
- ✓ Performance evidence

Portfolio assessment tools

- ✓ Assessor’s observation of testing the machine outputs
- ✓ A write up on common machine problems and how to fix them
- ✓ Assessor’s completed checklist

✓ Checklist	Score	
	Yes	No
Indicator 1: The machines are properly tested		
✓ Speed		
✓ Tension		
✓ Stitch type		
✓ Stitch quality		
Indicator 2: Common machine problems and how to fix them are properly identified and corrected		
✓ Needles		
✓ Clean the machine		

✓ Check the top threading		
✓ Check the thread quality		
✓ Bobbin thread not in the bobbin tension		
✓ Wrong bobbin		
✓ Needle not high enough		
✓ Needle too small for the thread		
✓ Nicks in the throat plate		
Observation		

Learning unit



3

Learning unit 3: Re-adjust machine setting to meet requirements

Learning Outcomes:

1. Interpret test results to determine adjustments
2. Assess adjustment changes
3. Comply with company health and safety policies and procedures

15 Hours

Learning Outcome 3.1: Interpret test results to determine adjustments

Content	Learning activities	Resources
<ul style="list-style-type: none">• Common stitch quality errors due to trouble shooting<ul style="list-style-type: none">✓ Stitches too tight✓ Stitches too loose✓ Skipping stitches✓ Loops are forming on the top of the fabric✓ Stitches are forming a knot in the beginning• Interpretation of errors and corrective measures to take<ul style="list-style-type: none">✓ Changing the needle✓ Changing the needle type✓ Adjusting the tension✓ Changing the thread✓ Fixing the bobbin✓ Pulling the fabric and threads when you start sewing• General machine maintenance	<ul style="list-style-type: none">✓ Teacher lecture and demonstrations✓ Practical exercise of interpreting common stitch quality errors✓ Individual exercise on taking corrective measures for stitching issues✓ Group exercise of performing general maintenance on a machine	<ul style="list-style-type: none">- Machine user manual- Notebook- Images- Videos- Different types of sewing machines- Machine needles- Different feet- Pen- Paper- Machine accessories- Test fabric- Screwdriver set- Threads- Tweezers

- ✓ Cleaning
- ✓ Fluff and lint removal
- ✓ Lubrication and oiling procedures of the different machines

Formative Assessment 3.1



Performance criterion

Correct interpretation of test results to determine adjustment requirements in accordance with expected results

Assessor may collect among the following types of evidence and make judgements on whether the performance criterion has been achieved.

Types of evidence

- ✓ Practical evidence
- ✓ Performance evidence
- ✓

Portfolio assessment tools

- ✓ Assessor's observation checklist used to assess the class exercises
- ✓ Assessor's completed checklist

Checklist	Score	
	Yes	No
Indicator 1: Common stitch quality errors are accurately interpreted		
✓ Stitches too tight		
✓ Stitches too loose		
✓ Skipping stitches		

✓ Loops are forming on the top of the fabric		
✓ Stitches are forming a knot in the beginning		
Indicator 2: Corrective measures are accurately identified		
✓ Changing the needle		
✓ Changing the needle type		
✓ Adjusting the tension		
✓ Changing the thread		
✓ Fixing the bobbin		
✓ Pulling the fabric and threads when you start sewing		
Observation		

Learning Outcome 3.2: Assess adjustment changes

Content

- A look at how to adjust machine settings for corrections
- Tension
 - ✓ Increasing the machine tension
 - ✓ Decreasing the machine tension
 - ✓ Increasing the bobbin tension
 - ✓ Decreasing the bobbin tension
 - ✓ Check if the bobbin is tight enough and re-wind if necessary
- Threading
 - ✓ Re-thread the machine, ensuring that the thread is between the tension disk plates
 - ✓ Re-thread the bobbin, ensuring that the bobbin thread is securely through the latch
 - ✓ Check that the bobbin is inserted in an anticlockwise direction

Learning activities

- ✓ Teacher demonstrations
- ✓ Observation of adjusting sewing machine tensions, threading and needles
- ✓ Group experiments

Resources

- Machine user manual
- Notebook
- Images
- Videos
- Different types of sewing machines
- Machine needles
- Different feet
- Pen
- Paper
- Machine accessories
- Test fabric
- Screwdriver set
- Threads
- Tweezers

Needle

- ✓ Check if the needle size is correct for the thread
- ✓ Check if the needle is straight and not bent
- ✓ Check if the needle is facing the right direction
- ✓ Check if the needle is inserted high enough
- ✓ Check if the needle type is correct for the fabric

Formative Assessment 3.2



Performance criterion

Proper assessment of adjustment changes in accordance with product and machine specifications

Assessor may collect among the following types of evidence and make judgements on whether the performance criterion has been achieved.

Types of evidence

- ✓ Performance evidence

Portfolio assessment tools

- ✓ Assessor's observation during class learning activities
- ✓ Assessor's completed checklist

Checklist	Score	
	Yes	No
Indicator 1: Machine tension adjustments for corrections are properly done		
✓ Increasing the machine tension		
✓ Decreasing the machine tension		
✓ Increasing the bobbin tension		
✓ Decreasing the bobbin tension		
✓ Check if the bobbin is tight enough and re-wind if necessary		
Indicator 2: Machine threading adjustments for corrections are properly done		
✓ Re-thread the machine, ensuring that the thread is between the tension disk plates		
✓ Re-thread the bobbin, ensuring that the bobbin thread is securely through the latch		
✓ Check that the bobbin is inserted in an anti-clockwise direction		
Indicator 3: Needle adjustments for corrections are properly done		
✓ Check if the needle size is correct for the thread		
✓ Check if the needle is straight and not bent		
✓ Check if the needle is facing the right direction		
✓ Check if the needle is inserted high enough		
✓ Check if the needle type is correct for the fabric		
Observation		



Learning Outcome 3.3: Comply with company health and safety policies and procedures

Content

- Safety procedures for operating different sewing machines and equipment
 - ✓ Keep your hands away from the needle
 - ✓ Keep your hair out of the way
 - ✓ Concentrate
 - ✓ Make sure pins and needles are intact
 - ✓ Do not sew over pins
 - ✓ Use the right machine for the right fabric
 - ✓ Be mindful of electricity
 - ✓ Listen to your machine
 - ✓ Service the machine regularly
 - ✓ Turn the machine off when not in use
 - ✓ Leave the presser foot and needle down when not in use
 - ✓ Keep liquid away from the machine
 - ✓ Put the electric cord out of the way to avoid tripping
 - ✓ Do not use a machine with a damaged cord

Learning activities

- ✓ Teacher's demonstrations
- ✓ Reading through health and safety policies
- ✓ Classroom discussions
- ✓ An individual write-up on all the safety procedures to take when using sewing machines and equipment

Resources

- Sewing machines
- Health and safety policies to assess
- Pen
- Notepad

Formative Assessment 3.3



Performance criterion

Appropriate compliance with company's health and safety policies and procedures

The assessor may collect any of the following evidences and make judgements if the performance criterion has been achieved.

Types of evidence	Portfolio assessment tools
<ul style="list-style-type: none"> ✓ Written evidence 	<ul style="list-style-type: none"> ✓ Multiple choice questions ✓ True-False questions ✓ Assessor's completed checklist

Checklist	Score	
	Yes	No
Indicator 1: Safety procedures for operating sewing machines and equipment are properly understood and followed		
✓ Keep your hands away from the needle		
✓ Keep your hair out of the way		
✓ Concentrate		
✓ Make sure pins and needles are intact		
✓ Don't sew over pins		
✓ Use the right machine for the right fabric		

✓ Be mindful of electricity		
✓ Listen to your machine		
✓ Service the machine regularly		
✓ Turn the machine off when not in use		
✓ Leave the presser foot and needle down when not in use		
✓ Keep liquid away from the machine		
✓ Put the electric cord out of the way to avoid tripping		
✓ Do not use a machine with a damaged cord		
Observation		

References:

1. Vogue/Butterick Step by step guide to sewing techniques
2. Fashion design essentials – Jay Calderin
3. Guide to basic garment assembly for the fashion industry, by Jayne Smith
4. [Sewing Machine Operation Instructions and Basics \(thesprucecrafts.com\)](http://thesprucecrafts.com)
5. www.letslearntosew.com
6. www.sewingmastery.com
7. www.sewguide.com