-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

Hanover House
24 Douglas Street
GLASGOW G2 7NQ

NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- **0084355** **-Session-1988-89**

-Superclass- **WH**

-Title- **MAINTENANCE OF LOW ARM BLINDSTITCH MACHINES ($x^1/_2$)**

-DESCRIPTION-

Purpose

This module is designed to provide students with essential skills and an in-depth understanding of the maintenance requirements and operating procedures of industrial chainstitch and lockstitch low-arm blindstitch sewing machines producing BS stitch types 103 and 306.

It is intended that this module is taught in conjunction with other related modules to form part of a prgramme of study which should include complementary industrial experience.

It is aimed at those following a career in clothing machine engineering.

Preferred Entry Level

84352 Stitchology and Thread Control
84354 Fabric Feeding Mechanisms

Learning Outcomes

The student should:

1. explain the methods of operation and practical applications of basic chainstitch and lockstitch low arm blindstitch sewing machines;

2. explain the methods of operation and interaction of the main stitch forming components of basic chainstitch and lockstitch low arm blindstitch machines;

3. carry out service procedures on basic chainstitch and lockstitch low arm blindstitch sewing machines in accordance with manufacturers' specifications;

4. diagnose and rectify faults in selected machine types and test for correct stitch formation and sewing performance.

Content/ Context

Safety and safe working practices should form an integral part of the exercise during investigation of practical machine adjustments and the effects produced in relation to the actual sewing performance of the selected chainstitch and lockstitch low arm blindstitch machines.

Corresponding to Learning Outcomes 1-4:

1. Recognition and selection of appropriate blindstitch machinery for given sewing applications:

    (a) padding - jacket lapels;
    (b) lashing - bridle taping;
    (c) felling - ladies and gents trousers;
    (d) hemming - ladies wear, knitwear;
    (e) bluff edging - ladies coats.

Operating principles of machines related to blindstitch seaming operations.

Recognition of the mechanisms for handling and controlling fabric during the blindstitch seaming operations as listed above.

The function of the following component parts in relation to fabric handling:

(a) presser feet;
(b) top feed dogs;
(c) plattens;
(d) plungers (ribs);
(e) cloth retainers.

Recognition of the mechanisms for controlling and handling the thread during stitch formation in chainstitch and lockstitch blindstitch machines.

The function of the following components in relation to thread handling:

(a) The thread pull-off, take-up systems on the blindstitch sewing machines:

    (i) reciprocating pull-off blindstitch;
    (ii) reciprocating take-up lockstitch;
    (iii) thread tensions - passive and active controls.

(b) the stitch forming implements:

    (i) needle levers with:

(a) rightward travel;
(b) leftward travel;

(ii) reciprocating looper (spreader) with bi-planar motion;
(iii) horizontal rotating hook incorporating automatic opener.

2. Interaction and timing relationships of different stitch forming component assembly plunger (rib) eccentric, skip stitch (catch) gearing and feeding mechanisms, practice in removal and replacement of the components and the use of manufacturers' gauges and marks to set up machines by making adjustment to the relative position of the components required to produce stitch types BS103, 306.

3. Examination of machine lubricating, bearing and gearing systems. Different machine lubricant requirements eg types and grades of oils and greases. Selection of appropriate lubricant for eg dissipation of heat.

4. Diagnosis of faults with reference to machines with:

(a) left to right needle travel incorporating looper (spreader);
(b) right to left needle travel incorporating rotating hook;
(c) skip stitch/non skip stitch (catch) mechanisms;
(d) rocking/dropping plunger mechanisms.

Setting, adjustment and testing of machines for producing test samples with balanced stitch types BS 103, 306.

Determination of the correct thread for a selection of materials, sewing operations, machines and production situations, in order to demonstrate technique of safe operation with the ability to control:

(a) stitch length;
(b) depth of penetration;
(c) thread tension;
(d) skip stitch (catch)

Suggested Learning and Teaching Practices

Safety, safe working practices, care and use of sewing equipment should be an integral part of all module activities.

This module should be presented in the sewing room/workshop where the tutor should carefully explain and demonstrate the various techniques using a programme of exercises related to a theme or vocational bias which will interest the student.

The student should follow an activity based learning approach to become familiar with the machines in question. Students could work singly or in pairs.

In the initial stages the tutor should fully explain and demonstrate each tool, operation or process. Terminology and principles should be introduced in the context of the exercises.

Information charts, posters and mechanic's manuals relating to machines, threads and fabrics should be displayed to assist the students with the exercises.

Student activities should be essentially centred on practical exercise assignments and the tutor should be expected to prepare precise briefs for each assignment exercise.

A set of completed exercises should be available for the students to relate and compare standards.

Assessment Procedures

Acceptable performance in the module will be satisfactory achievement of the performance criteria specified for each Learning Outcome.

The following abbreviations are used below:

LO Learning Outcome
IA Instrument of Assessment
PC Performance Criteria

LO1 EXPLAIN THE METHODS OF OPERATION AND PRACTICAL APPLICATIONS OF BASIC CHAINSTITCH AND LOCKSTITCH LOW ARM BLINDSTITCH SEWING MACHINES

PC The student:

(a) identifies the blindstitch BS stitch types 103 and 306 from prepared samples of sewing; (b) lists sewing operations for which each blindstitch type is used;
(c) explains the basic operating principles of blindstitch machinery;
(d) lists the advantages and disadvantages of the specialised chainstitch and lockstitch blindstitch for given operations;
(e) identifies specified components of chainstitch and lockstitch blindstitch machinery;

(f) states the function of the main components.

IA Objective Questions

The student should be set a test of objective questions to test the recall of knowledge relating to the methods of operation and practical applications of low arm chainstitch and lockstitch blindstitch machines.

Samples, diagrams and photographs may be used in the test.

The test will consist of 12 questions allocated as follows:

(a)	identification of stitch types	2 questions
(b)	sewing operations	2 questions
(c)	basic operation principles	2 questions
(d)	advantages and disadvantages	2 questions
(e)	identification of components of machinery	2 questions
(f)	functions of main components	2 questions

Satisfactory achievement of the Learning Outcome will be demonstrated by the student producing 9 correct responses including one from (a) - (f).

LO2 EXPLAIN THE METHODS OF OPERATION AND INTERACTION OF THE MAIN STITCH FORMING COMPONENTS OF BASIC CHAINSTITCH AND LOCKSTITCH LOW ARM BLINDSTITCH MACHINES

PC The student:

(a) identifies the specific areas related to thread control and stitch forming action of different types of
(b) explains the rotating action of the hook in relation to the right to left motion of the needle lever.
(c) explains the reciprocating bi-planar action of the looper spreader in relation to the left to right motion of the needle lever;
(d) describes stitch forming action and thread control of the rotating hook and looper spreader;
(e) explains the action of the feed dog in relation to the movement of the needle.

IA Restricted Response Questions

The student should be set questions to test the understanding of knowledge relating to the methods of operation and interaction of the thread control, rotating hook, looper spreaders, needle levers of chainstitch and lockstitch blindstitch machines.

Samples, diagrams and photographs may be used in the test.

The test will consist of 10 questions allocated as follows:

(a)	identification of specific areas	2 questions
(b)	rotating action of hook	2 questions
(c)	reciprocating bi-planer action of looper spreader	2 questions
(d)	stitch forming action	2 questions
(e)	feed dog action	2 questions

Satisfactory achievement of the Learning Outcome will be demonstrated by the student producing 8 correct responses including one from (a), (b), (c), (d) and (e).

LO3 CARRY OUT SERVICE PROCEDURES ON BASIC CHAINSTITCH AND LOCKSTITCH LOW ARM BLINDSTITCH SEWING MACHINE

PC The student:

(a) adjusts and sets components in correct timing relationships according to manufacturers' specifications;
(b) adjusts and replaces components to produce correct feeding action to permit machines to feed fabric;
(c) checks that the lubricating system functions during machine operation;
(d) works in a safe manner and wears appropriate safety clothing and equipment relative to the task.

IA Practical Exercise

The student should be presented with a practical exercise set under workshop conditions to test the application of knowledge and skills required to carry out service procedures on chainstitch and lockstitch blindstitch sewing machines.

The servicing will be carried out on one sewing machine and should include synchronisation of components,

adjustment of feeding mechanism and examination of lubricating bearing and gearing system.

Satisfactory achievement of the Learning Outcome will be demonstrated by the student meeting all performance criteria.

LO4 DIAGNOSE AND RECTIFY FAULTS IN SELECTED MACHINE TYPES AND TEST FOR CORRECT STITCH FORMATION AND SEWING PERFORMANCE

PC The student:

(a) diagnoses faults related to sewing fabric including slipping stitches, incorrect feed, malformed stitches, damage to fabric, needle deflection, incorrect depth of penetration;
(b) rectifies the diagnosed faults;
(c) sets up machine for testing and producing samples of stitch types;
    (i) selects and fits the appropriate needle into each machine type;
    (ii) selects the correct thread for a selection of materials;
    (iii) threads the machine correctly;
(d) works in a safe manner and wears safety clothing and equipment appropriate to the task.

IA Practical Exercise

The student should be presented with a practical exercise set under workshop conditions to test the application of knowledge and skills required to diagnose and rectify faults in the machine and test for correct stitch operation.

The exercise will be carried out on one machine containing 6 previously inserted faults.

Satisfactory achievement of the Learning Outcome will be demonstrated by the student meeting all performance criteria.