-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- **0084351** **-Session- 1988-89**

-Superclass- **WH**

-Title- **MAINTENANCE OF CHAINSTITCH MACHINES - SINGLE AND TWO THREAD ($x^1/_2$)**

-DESCRIPTION-

Purpose

This module is designed to provide students with skills in, and in-depth understanding of the maintenance and operating procedures of single and two thread chainstitch sewing machines producing BS stitch types 101 and 401.

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

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

Preferred Entry Level

Standard Grade in Mathematics at 3
Standard Grade in Science at 3
Standard Grade in English at 3

Learning Outcomes

The student should:

1. Outline the methods of operation and practical applications of single and two thread chainstitch sewing machines;

2. explain the methods of operation and interaction of the main stitch forming components of single and two thread chainstitch machines;

3. carry out service procedures on single and two thread chainstitch machines;

4. diagnose and rectify faults in single and two thread chainstitch machines and test for correct stitch formation and sewing performance.

Content/ Context

Safety and safe working practices should form an integral part of the module activities during investigation of practical machine adjustments and the effects produced in relation to the actual serving performance of selected chainstitch machines.

Corresponding to Learning Outcomes 1-4:

1. Recognition of sewing operations appropriate for chainstitch machinery: basting, long continuous seam.

   Design principles of the machines related to basting and seaming operations; casting shapes. Recognition of the mechanisms for controlling and handling the thread and fabric during stitch formation in chainstitch machines.

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

   a) The thread pull-off systems on the sewing machines.

      i) reciprocating pull-off;

      ii) rotary pull-off;

      iii) thread tensions - passive and active controls.

   b) The stitch forming implements:

      i) rotating and oscillating spreaders (looper);

      ii) oscillating looper - transverse and in-line with avoid and non-avoid motions.

   c) Auxiliary stitch forming implements:

      i) spreaders;

      ii) needle guards.

2. Interaction and timing relationships of different stitching component assemblies and feeding mechanisms required to produce stitch types BS101, 401. The use of manufacturers' gauges and marks to set up machines by making adjustment of the relative position of the components and the stitch forming mechanism.

3. Practice in removal and replacement of components. Use of correct tools, including allan keys and special spanners. Use of parts and instruction manuals.

   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. Setting, adjustment and testing of machines producing stitch types BS101, 401. 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 stitch size and thread tension adjustment for producing test samples with a balanced stitch.

Suggested Learning and Teaching Approaches

This module should be presented in the sewing room/workshop where the tutor would 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 would 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 would fully explain and demonstrate each tool, operation or process. Terminology and principles should be introduced in the context of the exercises.

Student activities would be essentially centred on practical exercise assignments and the student should follow precise briefs for each assignment exercise.

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

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

Safety and safe working practices should form an integral part of all instruction. It should be stressed throughout the module that the needs for good housekeeping, tidy layout of workplaces, materials and tools is imperative.

Assessment Procedures

Acceptable performance in the module will be satisfactory achievement of all 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 OUTLINE THE METHODS OF OPERATION AND PRACTICAL APPLICATIONS OF SINGLE AND TWO THREAD CHAINSTITCH SEWING MACHINES

PC The student:

(a) identifies the chainstitch BS stitch types of the 101 and 401 stitch types from prepared samples of sewing;
(b) lists sewing operations for which each single and two thread chainstitch machine type is used;
(c) states the basic operation principles of chainstitch machinery;
(d) lists the advantages and disadvantages of the specialised chainstitch for given operations;
(e) identifies specified components of chainstitch 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 single and two thread chainstitch 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 2 questions of machinery
(f) functions of main components 2 questions

Satisfactory achievement of the Learning Outcome will be demonstrated by the student producing 12 correct responses to the set questions.

LO2 EXPLAIN THE METHODS OF OPERATION AND INTERACTION OF THE MAIN STITCH FORMING COMPONENTS OF SINGLE AND TWO THREAD CHAINSTITCH SEWING MACHINES

PC The student:

(a) identifies the specific areas related to thread control and stitch forming action of different types of chainstitch machines;
(b) explains the rotating action of the looper (spreader) in relation to the motion of the needle bar on a single thread chainstitch machine;
(c) explains the oscillating action of the looper (spreader) in relation to the motion of the needle bar;
(d) describes stitch forming action and thread control of the looper and spreaders on a two thread chainstitch machine;
(e) explains the action of the feed dog in relation to the motion of the needle and the stitch forming implements.

IA Restricted Response Questions

The student should be set questions to test the understanding of the methods of operation and interaction of the thread control systems for: loopers, spreaders and needle bar of chainstitch 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 looper (spreaders) 2 questions
(c) oscillating action of looper and 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 response, including one from (a), (b), (c), (d) and (e).

LO3 CARRY OUT SERVICE PROCEDURES ON SINGLE AND TWO THREAD MACHINES

PC The student:

(a) adjusts and sets components in correct timing relationships according to manufacturer's specifications;

(b) adjusts and replaces components to produce correct feeding action to permit machines to feed fabric;
(c) checks that the lubricating, bearing and gearing systems function during machine operation;
(d) carries out test exercises on machine to produce correctly - formed stitch;
(e) 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 sewing machines.

The servicing will be carried out on a single thread and on a two thread chainstitch machine and should include synchronisation of components, adjustment of feeding mechanism, examination of lubricating system.

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

LO4 DIAGNOSE AND RECTIFY FAULTS IN SINGLE AND TWO THREAD CHAINSTITCH MACHINES 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, and needle deflection;
(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;
(iv) operates 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 and sewing performance.

The exercise will be carried out on one machine of each type containing a maximum of 8 previously inserted faults.

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