

**-SQA- SCOTTISH QUALIFICATIONS AUTHORITY**

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**NATIONAL CERTIFICATE MODULE DESCRIPTOR**

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<b>-Module Number-</b>	<b>2140110</b>	<b>-Session-1990-91</b>
<b>-Superclass-</b>	<b>XR</b>	

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<b>-Title-</b>	<b>THREAD TRIMMING AND WIPER MECHANISMS (x<sup>1</sup>/<sub>2</sub>)</b>
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**-DESCRIPTION-**

Purpose                      This module is designed to provide the student with an understanding of thread trimming and wiper mechanisms and their relative importance when applied to a wide range of machines used by the garment and allied industries.

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.

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Preferred	84350	Maintenance of Lockstitch Machines (x 1/2)
Entry Level	84351	Maintenance of Chainstitch Machines: Single and Two Thread (x 1/2)
	84352	Stitchology and Thread Control
	2140040	Fabric Feeding Mechanisms (x 1/2)
	64002	Fundamentals of Technology: Mechanical
	64003	Fundamentals of Technology: Electrical
	2140010	Clothing Machining: Manufacturing Technology 1

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Outcomes	The student should:
	1. outline the need for thread trimming and its relationship to needle positioning devices/mechanisms;
	2. evaluate design methods and the operation of different types of thread trimming and wiper mechanisms;

3. dismantle, reassemble and adjust components of thread trimming mechanisms;
4. outline the fault diagnosis and rectification procedures for thread trimming mechanisms.

Assessment  
Procedures

Acceptable performance in the module will be satisfactory achievement of all the Performance Criteria specified for each Outcome.

The following abbreviations are used below:

PC Performance Criteria  
IA Instrument of Assessment

**Note:** The Outcomes and PCs are mandatory and cannot be altered. The IA may be altered by arrangement with SQA. (Where a range of performance is indicated, this should be regarded as an extension of the PCs and is therefore mandatory.)

**OUTCOME 1**

**OUTLINE NEED FOR AUTOMATIC THREAD TRIMMING AND ITS RELATIONSHIP TO NEEDLE POSITIONING DEVICES/MECHANISMS**

PCs

- (a) The identification of operative skills and motions which would be improved by the elimination of manual thread trimming is correct.
- (b) The identification of the benefits to production and operative by the free removal of work at the end of sewing operation is correct.
- (c) The identification of operations which can be adapted to the use of thread trimming mechanisms is correct in terms of ease of adaption process.
- (d) The identification of factors which have a bearing on the use of underbed trimming mechanisms is correct in terms of increase in production, ease of work flow and increase in safety standards.
- (e) The identification of the interrelationship between needle positioning devices and thread trimming mechanisms is correct.

IA Restricted Response Questions

The student will be set an exercise consisting of restricted response questions to test understanding of the need for automatic trimming of needle and spool (bobbin) thread throughout sewing operations.

The exercise will consist of 7 questions allocated as follows:

- |     |  |   |
|-----|--|---|
| (a) | advantages of thread trimming and wiper mechanisms             | 2 |
| (b) | adaption of trimming mechanisms                                | 1 |
| (c) | use of trimming mechanisms                                     | 2 |
| (d) | functions of needle positioning with regard to thread trimming | 2 |

Satisfactory achievement of the Outcome will be based on all Performance Criteria being met. This will be demonstrated by the student producing at least 1 correct response to each of (a), (b), (c) and (d).

## OUTCOME 2

### EVALUATE DESIGN METHODS AND THE OPERATION OF DIFFERENT TYPES OF THREAD TRIMMING AND WIPER MECHANISMS

PCs

- (a) The outline of the need for different design methods is correct.
- (b) The identification of the advantages of a range of different power mediums is correct.
- (c) The outline of the components directly related to activating and controlling the thread trimmer and wiper mechanisms is correct in terms of their interaction and working relationship.
- (d) The identification of the components parts directly related to the actual trimming and wiping of the threads is correct in terms of the name and function.

IA Structured Question

The student will be set an exercise consisting of one structured question to test understanding of the operation of thread trimming and wiper assemblies.

The question will be based on a thread trimming and wiper mechanism which could be presented to the student in a physical or diagrammatic form of any other suitable medium.

The question will be sub-divided into two parts allocated as follows:

- |     |  |   |
|-----|--|---|
| (a) | interaction of working relations of differing design methods | 1 |
| (b) | name and function of component parts                         | 1 |

Satisfactory achievement of the Outcome will be based on all Performance Criteria being met. This will be demonstrated by the student producing a correct response to each part of the question.

**OUTCOME 3                    DISMANTLE, REASSEMBLE AND ADJUST COMPONENTS OF THREAD TRIMMING MECHANISMS**

- PCs
- (a) The identification of components of trimming mechanisms is correct in terms of name and function.
  - (b) The dismantling of the component ensures all component parts can be identified.
  - (c) The reassembly of the components ensures all parts are relocated correctly and securely.
  - (d) The adjustment of the components ensures correct timing relationships.
  - (e) Use of tools is appropriate to the tasks.
  - (f) Working practices followed are safe.

IA    Assignment

The student will be set an assignment consisting of a practical exercise and objective questions to test the application of knowledge and skills required to dismantle, reassemble and adjust components of thread trimming mechanisms.

For the practical exercise the student will be required to remove, replace and adjust indicated components. In addition, the student will be required to identify each component by name and function in relation to the machine. Questions can be either written or oral.

Satisfactory achievement of the Outcome will be based on the student meeting all of the Performance Criteria for each component.

**OUTCOME 4                    DIAGNOSE AND RECTIFY FAULTS IN THREAD TRIMMING MECHANISMS**

- PCs
- (a) The diagnosis of the fault is correct for the given sewn sample.
  - (b) The rectification of the fault ensures effective and safe use of the thread trimming and wiper mechanism.
  - (c) Tools and instruments used are appropriate to the task.
  - (d) Working practices followed are safe.

## IA Practical Exercise

The student will be given an exercise consisting of a series of practical tasks to test the application of knowledge and skills required to diagnose and rectify faults in thread trimming and wiper mechanisms.

The exercise will consist of two tasks. One task will involve a built-in fault causing differing trimming problems. The other task will involve a built-in problem fault causing non activation of the trimmers.

The student will be given sewn samples, incorporating the effect of each of the above listed faults. The student will be required to identify and rectify each fault in accordance with the Performance Criteria.

Satisfactory achievement of the Outcome will be based on all Performance Criteria being met. This will be demonstrated by the student producing samples of given stitch types on the repaired thread trimming mechanisms.

**The following sections of the descriptor are offered as guidance.  
They are not mandatory.**

### CONTENT/CONTEXT

Corresponding to Outcomes 1-4:

1. Recognition of the operative skills and motions which are enhanced, simplified or eliminated and the appropriate sewing processes that constitute the use of trimming mechanisms:
  - (a) manual trimming of sewing threads
  - (b) removal of work at end of sewing operation
  - (c) specific short seaming tasks eg. pockets, collars, cuffs, zips, and labels etc
  - (d) economic Factors related to Production
  - (e) benefits of trim machines
  
2. Recognition and determination in the choices of design methods of mechanical/electro-mechanical/pneumatic thread trimming mechanisms to suit the needs of specific machine types for production requirements and for activating and controlling the mechanisms on completion of the stitch forming cycle in lockstitch and chainstitch machines.
  - (a) Evaluate in terms of:
    - (i) operational demands
    - (ii) production quality standards
    - (iv) adaptability of machine
    - (v) service requirements
  
  - (b) The interaction between:
    - (i) position transmitter synchronises
    - (ii) stitch forming implements
    - (iii) thread trimming mechanisms
  
  - (c) The function of the following components in relation to thread trimming:
    - (i) spool retainer
    - (ii) catcher (puller)
    - (iii) moving and stationary knives
    - (iv) tension assemblies
    - (v) wiper assembly
  
3. Interaction and timing relationship of the different component assemblies; practice in removal and replacement of the components:
  - (i) stitch forming mechanism
  - (ii) catcher - puller mechanism
  - (iii) moving and stationary knife mechanism
  - (iv) tension release mechanism - lockstitch

- (v) auxiliary thread control mechanism - chainstitch
- (vi) thread wiper mechanism
- (vii) stitch condensing mechanism - chain stitch

The use of manufacturers' gauges and timing marks to make adjustment to the synchronisation and position of the components required to successfully trim the sewing threads on machines producing BS300, 400 and 500 series stitch types.

4. Diagnosis and identification of faults related to the trimming and wiper mechanisms with particular reference to machines with:

- (a) mechanically activated knife action
- (b) electro-mechanically activated knife action
- (c) pneumatically activated knife action
- (d) electro-pneumatically activated knife action

Contained within machines with:

- (i) lockstitch rotating hook- horizontal, vertical, transverse
- (ii) chainstitch looper-transverse, in-line-of-feed
- (iii) lockstitch oscillating shuttle
- (iv) chainstitch overedge - milk-looper

Setting adjustment and testing of machines producing BS300, 400, and 500 series stitch types.

#### SUGGESTED LEARNING AND TEACHING APPROACHES

- (a) 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 exercise related to a theme for vocational bias which will interest the student.
- (b) The student would follow an activity based learning approach to become familiar with the machines in question. Students could work singly or in pairs.
- (c) In the initial stages the tutor would fully explain and demonstrate each tool gauge operation or process. Terminology and principles should be introduced in the context of the exercises.
- (d) Information charts, poster and mechanics manuals relating to machines and trimming mechanisms should be displayed to assist the students with the exercises.
- (e) Student activities would be essentially centred on practical exercise assignments and the tutor would be expected to prepare precise briefs for each assignment exercises.
- (f) A set of completed exercises should be available for the student to relate and compare standards.

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