



Australian Government

Department of Education, Employment and Workplace Relations

LMTX3018A Undertake electronic fault finding on textile machinery

Revision Number: 1

LMTTX3018A Undertake electronic fault finding on textile machinery

Modification History

Not applicable.

Unit Descriptor

Unit descriptor This unit covers the skills and knowledge required to identify low voltage electronic faults on textile machinery including looms and other weaving related equipment, spinning, tufting, carding, knitting, sewing and finishing equipment. It includes the repair or replacement of the faulty component or to refer the repair on to other personnel.

Application of the Unit

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This unit applies to the diagnosis and rectification of low voltage electrical problems in textile manufacturing machinery. It requires a knowledge of yarns and fabrics and the ability to check samples and part or fully finished textile products against samples and specifications and to determine faults that are caused by electronic equipment such as control systems and sensors.

It does not include 240 volt or higher equipment and circuits. Work covered by restricted electrical licenses will require additional training to meet license requirements.

Discretion and judgement may be required, for both self and others, in planning and selecting processes, procedures or outcomes.

Work may be conducted in a variety of environments, such as operational workplace activities, restricted space, hazardous, controlled or exposed conditions.

The application of this unit is according to OHS practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control and recycling

This unit requires the application of skills associated with planning and organising of resources and machinery for the required work, as well as applying skills and knowledge of machines and equipment to ensure production outcomes are met. Initiative and enterprise, and problem solving are key skills required to ensure operational efficiency of machines. This unit also requires an ability to communicate in writing and verbally with others.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

Employability Skills Information

Employability Skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Determine the cause of product fault or <i>textile machinery</i> breakdown	1.1 Operator consulted on machine operation and condition prior to breakdown 1.2 Visual check is made of textile machinery for any obvious damage or faulty components 1.3 Documentation, including schematics relating to machine settings, operation and maintenance is interpreted, referenced and applied according to the needs of the task 1.4 Appropriate <i>test equipment</i> is used to test circuits, sensors and other components to determine if fault is electronic in nature 1.5 Faulty components are identified and isolated
2 Assess and repair wiring faults	2.1 Wiring faults correctly isolated 2.2 Replacement cables/wires correctly selected appropriately for size and insulation quality 2.3 Wiring looms, terminals and connections prepared according to industry and enterprise requirements 2.4 Wiring terminations are prepared and made correctly 2.5 Circuit components are tested for correct operation in accordance with standard operating procedures
3 Remove, replace or adjust faulty electronic equipment components	3.1 Faulty system components are dismantled according to manufacturer/site specifications and in accordance with standard operating procedures 3.2 Faulty component is assessed for repair or replacement repaired 3.3 Component repaired if required or new replacement component installed
4 Check textile equipment for correct operation	4.1 Equipment is operated to determine if working correctly 4.2 Sample produced if required to determine that all sensors work and program instructions and <i>product specification</i> are followed 4.3 Operator advised of any special requirements as a consequence of the repair 4.4 Repair or replacement documented according to standard procedures

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

Demonstrates knowledge of:

- role and relationship of electronic components found in textile machinery input devices, PLCs, computers and other processors, display devices, sensors, timers, cables and wiring, cable harnesses, control systems and loom operation
- textile terminology and textile processes
- setting up and adjustment requirements for the textile equipment in the enterprise and the range of textiles or garments produced
- quality requirements for the enterprise and product
- equipment manufacturer specifications
- safety and environmental requirements for enterprise activities
- workplace procedures and reporting processes
- relevant OHS legislation and codes of practice
- fibre and yarn characteristics affecting machine performance for example yarn strength, sizing, ambient conditions, count

Demonstrates skills to:

- use appropriate hand and power tools
- use test equipment
- fault find low voltage electronic circuit and components
- dismantle repair and/or replace textile equipment electronic components
- test equipment performance
- apply all relevant OHS practices
- communicate effectively with individuals, work groups, supervisors managers and appropriate enterprise personnel
- maintain records and document and transfer information

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Critical aspects of evidence to be considered	Demonstrates skills and knowledge to: <ul style="list-style-type: none">• correctly interpret production specifications, schematics and manufacturer instructions• set and operate textile machinery safely and correctly• perform sample runs and analyse results• identify and make appropriate readjustments to electronic controls and systems• determine root cause of operational problems• solve operational problems• apply workplace health and safety policies in production operations• maintain accurate records
Consistency in performance	Consistently applies skills and knowledge when: <ul style="list-style-type: none">• organising work• completing tasks• identifying improvements• using workplace practices• using OHS practices• recording and reporting accidents and incidents• assessing operational readiness of equipment used and work processes• recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions• completing work systematically with attention to detail without damage to goods and equipment
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent Assessment	This unit may be assessed independently or in combination with other relevant units.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the Performance Criteria, is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Legislative/regulatory requirements All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Textile machinery may include Textile machinery may include machines used for:

- spinning
- carding
- tufting
- winding
- weaving
- knitting
- dyeing
- sewing
- finishing and packing

Test equipment Textile equipment may include analogue and digital electronic measuring equipment, mechanical measuring equipment and gauges.

Product specifications may include

- count
- twist
- ply
- tension
- weight
- lubrication
- twist direction
- strength
- pattern
- colour
- type of weave
- type of knit
- dimensions

Machine settings may include

- electronic settings
- automated setting
- mechanical settings

Unit Sector(s)

Sector Textile Production