



Australian Government

Department of Education, Employment and Workplace Relations

MEM05053A Set and edit computer controlled thermal cutting machines

Release: 1

MEM05053A Set and edit computer controlled thermal cutting machines

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers setting work holding fixtures/devices/tools, setting gas and nozzle controls, trialling the program, instructing the operator and replacing worn or damaged hoses, regulators, nozzles and clamps or other holding devices or tools.
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Application of the Unit

Application of the unit	<p>The unit applies to any computer or numerically controlled thermal cutting machine or process. Applications may include NC/CNC thermal cutting machines and industrial robots performing thermal cutting.</p> <p>Editing applies to identifying and accessing programs in edit mode in order to make changes associated with gas mixtures, nozzle or work piece feed speed and operational sequence. Changes are generally made in situ.</p> <p>Work is performed to established processes, practices and specifications.</p> <p>All work and work practices are performed to instructions, plans and specifications as appropriate. Technical difficulties are resolved in consultation with appropriate technical advisers. Work is carried out autonomously to predetermined standards of quality and safety.</p> <p>For setting and editing other computer controlled machines, see Unit MEM07016C (Set and edit computer controlled machines/processes). Where manual thermal cutting, gouging and shaping is required Unit MEM05008C Perform advanced manual thermal cutting, gouging and shaping should also be selected.</p> <p>This unit has dual status and is to be regarded as both a Specialisation band A unit and Specialisation band B unit for progression to C7 (AQF level IV).</p> <p>Band: A</p> <p>Unit Weight: 4</p>
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM05007C	Perform manual heating and thermal cutting
	MEM05009C	Perform automated thermal cutting
	MEM09002B	Interpret technical drawing
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify job requirements	1.1. Instructions/plans are understood and correctly followed.
2. Set work holding fixtures/devices/tools	2.1. Correct ancillary devices are selected and attached to machine using standard operating procedures. 2.2. Machine is prepared to accept work holding devices. 2.3. Work holding fixtures/devices/tools are set to zero or a datum using appropriate setting devices.
3. Set gas and nozzle controls	3.1. Gas and nozzle controls are set according to type and thickness of material to be cut and to minimise distortion.
4. Trial program	4.1. Program is trialled observing all safety procedures. 4.2. Sample cut is checked for compliance with specifications. 4.3. Program editing to change gas mixture, feed and operational sequence requirements is undertaken as required to ensure job conforms to specification.
5. Instruct machine operator	5.1. Operator is instructed if necessary ensuring that all safety procedures and devices are in place.
6. Replace worn or damaged nozzles, regulators and work holding devices/tools.	6.1. Where appropriate, worn or damaged nozzles, regulators and work holding devices/tools are replaced, or other corrective action is taken using standard operating procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
Look for evidence that confirms skills in: <ul style="list-style-type: none"> reading, interpreting and following information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents planning and sequencing operations

REQUIRED SKILLS AND KNOWLEDGE

- checking and clarifying task related information
- attaching ancillary devices
- mounting work holding devices
- editing programs
- instructing machine operator on the sequence of operations
- following safety procedures
- identifying worn or damaged holding devices or fixtures and taking appropriate corrective action

Required knowledge

Look for evidence that confirms knowledge of:

- ancillary equipment and its applications
- procedures for attaching the ancillary device(s) to the NC/CNC machine
- work holding devices, their application and procedures for mounting them
- location of work holding fixtures/devices/tools relative to the machine zero or datum
- operating procedures
- safety features and equipment
- measuring devices/ techniques for checking the parts or product
- effects of changes to gas mixtures and nozzle or work piece speed
- the impact of changes to the sequence of operations on the part or product to be produced
- procedures for editing programs via the machine controller
- the sequence of operations of the machine/process
- the corrective action to be taken for worn or damaged tooling
- hazards and control measures associated with computer controlled machines, including housekeeping
- safe work practices and procedures

Evidence Guide

EVIDENCE GUIDE	
<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to set and edit computer controlled thermal cutting machines/processes. Competency in this unit cannot be claimed until all prerequisites have been satisfied.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.</p>
<p>Context of and specific resources for assessment</p>	<p>This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, i.e. the candidate is not in productive work, an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.</p> <p>This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with setting and editing computer controlled thermal cutting machines or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
<p>Method of assessment</p>	<p>Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning should not require language, literacy and numeracy skills beyond those required in this unit. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.</p>

EVIDENCE GUIDE

Guidance information for assessment	
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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. 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) may also be included.

Unit Sector(s)

Unit sector	
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Co-requisite units

Co-requisite units		

Competency field

Competency field	Fabrication
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