Australian Government

Department of Education, Employment and Workplace Relations

MEM05025C Perform welding/fabrication inspection

Release: 1

MEM05025C Perform welding/fabrication inspection

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers performing welding/fabrication inspection by selecting, conducting or verifying appropriate non-destructive tests, establishing and validating welding procedures, ensuring quality assurance is carried out, and monitoring procedures.

Application of the Unit

Application of the unit	This unit applies to welding inspection based on knowledge of welding science and metallurgy, mechanical properties of welded joints, heat treatment procedures and national and technical standards. All work is undertaken in accordance with legislative and regulatory requirements. Test procedures and the range of this standard are determined by applicable Australian and/or international standards. **Band**: **B** **Unit Weight**: **12**

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM05026C	Apply welding principles
	MEM12023A	Perform engineering measurements

Employability Skills Information

Employability skills	This unit contains employability skills.

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Select and organise/conduct appropriate non-destructive test procedures or verify previous test procedures	1.1. Appropriate non-destructive tests are selected and organised/conducted in accordance with standard operating procedures or job specifications. 1.2. Results of previous testing procedures are verified.
2. Establish welding procedure	2.1. Joint design specification is interpreted. 2.2. Parameters are described. 2.3. Variables are checked. 2.4. Procedures are documented.
3. Validate welding procedures	3.1. Preparation of a test piece is organised. 3.2. Prescribed tests are arranged or conducted. 3.3. Test results are interpreted and report is prepared identifying required action.
4. Ensure quality assurance procedures are carried out	4.1. Material identification is checked. 4.2. Movement of material through workshop in-site is documented. 4.3. Transferring material test certification numbers is witnessed. 4.4. Identification of consumables in accordance with welding procedures is performed. 4.5. Storage and use of consumables are monitored. 4.6. Quality records are maintained and reviewed to ensure compliance with requirements.
5. Monitor procedures in process	5.1. Material forming is checked. 5.2. Dimensional checks are carried out. 5.3. Final inspection is made against specifications.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

REQUIRED SKILLS AND KNOWLEDGE

Look for evidence that confirms skills in:

- obtaining, interpreting and applying relevant job instructions, design and weld specifications, codes, standards and procedures
- organising tests
- initiating and conducting weld tests
- obtaining and interpreting weld tests
- obtaining and interpreting weld design data
- verbally conveying, checking and clarifying information
- checking weld parameters for conformance to specifications
- documenting welding procedures
- preparing test reports
- recording movement of material through the workshop
- producing test pieces
- marking consumables for identification
- checking material for conformance to specifications
- using and storing welding consumables
- maintaining welding quality records
- checking welding records for conformance with welding quality requirements
- checking the form of the material to be welded for conformance with specifications
- using measurement skills for checking the dimensions of welded components
- performing relevant calculations

Required knowledge

Look for evidence that confirms knowledge of:

- hazards and control measures associated with welding/fabrication inspection
- safe work practices and procedures
- use and application of personal protective equipment
- types of non-destructive tests and their application
- welding procedures for the given weld
- tests/checks to be conducted
- arithmetic operations, formulae and calculations for testing welding/fabrications
- procedures for initiating the weld tests
- procedures for conducting a variety of non-destructive tests
- procedures for obtaining previous weld tests
- discrepancies between previous and current weld tests
- reasons for any identified discrepancies
- effects of testing procedures on test results
- procedures for verifying/amending previously established weld test procedures
- the parameters affecting the performance of the weld with respect to specifications

REQUIRED SKILLS AND KNOWLEDGE

- variables affecting the performance of the weld
- tools, equipment and techniques necessary to check each variable
- procedures, tools, techniques and equipment necessary to check the form and dimensions of the welded components
- procedures for documenting welding procedures and preparing a weld test piece
- tools, equipment and techniques to carry out the prescribed tests
- procedures for initiating prescribed tests, obtaining test results, and reporting test result
- discrepancies between the test results and weld specifications
- action to be taken to return the welds produced to specification
- weld specifications
- methods of identifying weld materials
- reasons for correctly marking/identifying weld materials
- procedures for documenting/recording the movement of material through the workshop
- the reasons for documenting/recording the movement of material through the workshop
- procedures for transferring material test certification numbers
- person(s) who can witness the transfer of material test certification numbers
- the reasons for witnessing the transfer of material test certification numbers
- procedures for identifying consumables and reasons for marking consumables for identification purposes
- procedures for using and storing consumables and the consequences of inappropriate use and/or storage of consumables
- the storage life of consumables
- procedures for maintaining welding quality records
- the welding quality requirements of the relevant code, standard and/or welding procedure

Evidence Guide

EVIDENCE GUIDE	
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.	
Overview of assessment	A person who demonstrates competency in this unit must be able to perform welding/fabrication inspection. Competency in this unit cannot be claimed until all prerequisites have been satisfied.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	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.
Context of and specific resources for assessment	This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then 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. This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with performing welding/fabrication inspection or other units requiring the exercise of the skills and knowledge covered by this unit.
Method of assessment	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 techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. 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.

EVIDENCE GUIDE	
Guidance information for assessment	

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.	
Non-destructive tests	Dye penetrant magnetic particle, radiographic or ultrasound tests

Unit Sector(s)

Unit sector	

Co-requisite units

Co-requisite units		

Competency field

Competency field	Fabrication