



Australian Government

MEM05025 Perform welding/fabrication inspection

Release: 2

MEM05025 Perform welding/fabrication inspection

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM05025 Perform welding/fabrication inspection (Release 1).

Release 1. Supersedes and is equivalent to MEM05025C Perform welding/fabrication inspection.

Application

This unit of competency defines the skills and knowledge required to perform 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.

It 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. Test procedures and the range of this standard are determined by applicable Australian and/or international standards.

Where the performance of non-destructive testing is required the appropriate units should also be selected.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: B

Unit Weight: 12

Pre-requisite Unit

MEM05026	Apply welding principles
MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities
MEM16006	Organise and communicate information

Competency Field

Fabrication

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|---|-----|---|
| 1 | Determine job requirements | 1.1 | Follow standard operating procedures (SOPs) |
| | | 1.2 | Comply with work health and safety (WHS) requirements at all times |
| | | 1.3 | Use appropriate personal protective equipment (PPE) in accordance with SOPs |
| | | 1.4 | Identify job requirements from specifications, drawings, job sheets or work instructions |
| | | | |
| 2 | Select and organise appropriate non-destructive test procedures or verify previous test procedures | 2.1 | Select appropriate non-destructive tests and organise/conduct in accordance with SOPs or job specifications |
| | | 2.2 | Verify results of previous testing procedures |
| | | | |
| 3 | Establish and validate welding procedure | 3.1 | Interpret joint design specification and interpret parameters |
| | | 3.2 | Check variables |
| | | 3.3 | Document procedures |
| | | 3.4 | Organise preparation of a test piece and arrange or conduct prescribed tests |
| | | 3.5 | Interpret test results and prepare report identifying required action |

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
4	Ensure quality assurance procedures are carried out	4.1	Check material identification
		4.2	Document movement of material through workshop in-site
		4.3	Witness transferring material test certification numbers
		4.4	Perform identification of consumables in accordance with welding procedures
		4.5	Monitor storage and use of consumables
		4.6	Maintain and review quality records to ensure compliance with requirements
5	Monitor procedures in process	5.1	Check material forming
		5.2	Carry out dimensional checks
		5.3	Make final inspection against specifications

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Non-destructive tests include one (1) or more of the following:

- dye penetrant
- magnetic particle
- radiographic
- ultrasound

Unit Mapping Information

Release 2. Supersedes and is equivalent to MEM05025 Perform welding/fabrication inspection (Release 1).

Release 1. Supersedes and is equivalent to MEM05025C Perform welding/fabrication inspection.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM05025 Perform welding/fabrication inspection

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- organising/conducting appropriate non-destructive tests or verifying results of previous test procedures
- establishing and validating welding procedures by interpreting joint design specification, organising a test piece, interpreting the results and preparing a report identifying action to be taken
- ensuring quality assurance procedures are carried out, including checking identification (material test certification numbers), movement and document material through workshop in-site
- carrying out final inspection of fabrications, including material forming and dimensional checks against specifications
- maintaining and reviewing quality records to ensure compliance.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe welding practices and procedures and use of personal protective equipment (PPE)
- types of non-destructive tests, their application and procedures
- welding specifications and 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 and obtaining previous weld tests
 - verifying/amending previously established weld test procedures
 - documenting welding procedures and preparing a weld test piece

- documenting/recording the movement of material through the workshop and reasons why this is necessary
- transferring material test certification numbers
- identifying consumables and reasons for marking consumables for identification purposes
- using and storing consumables and the consequences of inappropriate use and/or storage of consumables
- maintaining welding quality records
- reasons for any identified discrepancies between previous and current weld tests
- effects of testing procedures on test results
- parameters and variables affecting the performance of the weld with respect to specifications
- tools, equipment, techniques and procedures necessary to check each variable, form and dimensions of the welded components
- tools, equipment, techniques and procedures to initiate, carry out, obtain and report the prescribed tests results
- discrepancies between the test results and weld specifications and remedial action to be taken to return welds produced to specification
- reasons and methods for correctly marking/identifying weld materials
- person(s) who can witness the transfer of material test certification numbers and reasons why this is important
- storage life of consumables
- welding quality requirements of the relevant code, standard and/or welding procedure.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing welding/fabrication inspection at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Assessment must occur in a functioning workplace. Where assessment in the workplace would be unsafe, impractical or threatens the environment, assessment must occur in a sufficiently rigorous simulated environment that reflects the circumstances that would be experienced in a functioning workplace. Assessment must cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

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