



Australian Government

Assessment Requirements for MEM24008 Perform ultrasonic testing

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM24008B Perform ultrasonic testing.

Performance Evidence

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

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, relative testing and conformance standards for performing ultrasonic testing
- preparing the area for testing and identifying discontinuities including observed changes in material homogeneity in accordance with procedures
- carrying out ultrasonic testing using techniques and equipment appropriate for material/s to be tested, checking and confirming basic indicators and identifying and classifying defects in accordance with national and international codes and standards on at least two occasions
- undertaking numerical operations and calculations associated with performing ultrasonic testing
- reporting test results in accordance with procedures and customer service requirements on at least two occasions.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

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 work practices and procedures and use of personal protective equipment (PPE)
- cleaning and preparation processes, procedures and work health and safety (WHS) requirements in relation to the preparation process for different test surfaces
- established assessment procedures and techniques
- principles of ultrasonic testing
- variables affecting test selection and test results
- ultrasound including frequency, velocity, wavelength and amplitude
- behaviour of ultrasound at interfaces
- characteristics of ultrasound in materials
- generation and detection of ultrasound

- basic test methods including pulse-echo and transmission methods, resonance methods, a, b, c, and p scan, types of coupling, single, dual and two-probe methods
- characteristics and applications associated with probes
- calibration methods
- variables
- contact and immersion test methods and their application
- flaw detector and flaw size evaluation
- interpretation and evaluation including defect types as related to product and codes and standards
- recording and reporting including job records, routine reports and codes and standards
- written procedures including presentation and use of standards
- types of discontinuities and their consequences
- procedures, tools, equipment, techniques and system verification checks necessary to carry out the ultrasonic test
- advantages and limitations of ultrasonic testing
- maintenance and storage procedures for testing equipment
- types of defects
- methods and/or procedures for reporting test results
- the following defects:
 - corrosion
 - metal fatigue
 - deformation in nonferrous alloys, ferrous alloys and steels
 - composite materials
 - fatigue cracks
 - stress corrosion cracking
 - manufacturing defects
 - thickness measurement and fit
 - mechanical and bonded repairs
 - laminar tearing
 - welding defects
 - casting defects
 - aircraft components.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing ultrasonic testing 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.

- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, 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.

Links

Companion Volume implementation guides are found in VETNet -

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