



Australian Government

MEM18064 Maintain instrumentation system components

Release: 1

MEM18064 Maintain instrumentation system components

Modification History

Release 1. Supersedes and is equivalent to MEM18064B Maintain instrumentation system components

Application

This unit of competency defines the skills and knowledge required to maintain instrument system components of a primarily mechanical nature.

Application of this unit would involve identifying instrumentation system components as well as inspecting and assessing component condition/operation using instrumentation principles and methods and interpreting information from data sheets and circuit diagrams in order to make repairs and replacements to predetermined site or manufacturer specifications.

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

Band: A

Unit Weight: 6

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12002	Perform electrical/electronic measurement
MEM12023	Perform engineering measurements
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools
MEM18002	Use power tools/hand held operations
MEM18055	Dismantle, replace and assemble engineering components

Competency Field

Maintenance and diagnostics

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 | Check instrumentation system components | 2.1 Identify system components through interpreting the characteristics and operational function of each system component |
| | | 2.2 Inspect the operational function of each component and test in accordance with procedures |
| | | 2.3 Assess operation of each component against specifications |
| | | |
| 3 | Identify, repair/replace faulty instrumentation system components | 3.1 Localise/isolate faulty system components and confirm the malfunction by inspection and testing using appropriate techniques, procedures and safety requirements |
| | | 3.2 Dismantle faulty system components and repair according to manufacturers'/site specifications |
| | | 3.3 Select replacement parts from manufacturer catalogues and listings to required specifications |
| | | 3.4 Reassemble system components and test for correct operation and assessment against specifications |
| | | 3.5 Confirm correct operation of the instrumentation system according to SOPs |
| | | 3.6 Adopt appropriate follow-up procedures |
| | | 3.7 Complete service reports in accordance with SOPs |

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.

Application includes one (1) or more of the following:

- fixed plant and equipment
- mobile plant and equipment
- marine installations
- machine and process operations

Components include one (1) or more of the following:

- sensors
- transmitters
- converters
- indicators
- analysers
- controllers
- transducers
- power supplies
- removable circuit boards
- sensor units associated with determining/controlling density, level, flow, temperature and composition of a range of materials

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18064B Maintain instrumentation system components

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 MEM18064 Maintain instrumentation system components

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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
- identifying and interpreting instrumentation circuits, specifications, drawings, data sheets and manuals and obtaining relevant data with respect to the operation of the instrumentation systems/equipment
- locating, inspecting and testing a range of instrumentation system components using appropriate test equipment, techniques and procedures
- fault finding components and confirming malfunction by inspection and testing using instrumentation principles and procedures
- dismantling/repairing/reassembling faulty components and sourcing replacement parts from manufacturer/supplier catalogues
- checking repaired/replaced instrumentation system components for correct operation and completing all service reports in accordance with SOPs
- undertaking zero, span and range checks and calibrating instrumentation systems/equipment to operational specifications
- recording/documenting test results in accordance with SOPs.

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)
- instrumentation principles, including controlling density, level, flow, temperature and composition of a range of materials
- effects of resistance, capacitance, inductance and impedance (R, L, C) upon electrical circuit
- interpretation requirements of schematic, wiring and block diagrams and circuits
- basic principles of hydraulic/pneumatic/electrical flow
- procedures for:
 - inspecting and testing instrumentation system components and equipment to be used

- dismantling, repairing, reassembling and testing faulty instrumentation system components
- recording and completing service reports
- purpose, operational function and specifications, including deviations of instrumentation system components
- correct operation of the instrumentation system.

Assessment Conditions

- Assessors must:
 - have vocational competency in maintaining instrumentation system components 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. This must 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.

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