



Australian Government

MEM21016 Install and set up clocks

Release: 1

MEM21016 Install and set up clocks

Modification History

Release 1. Supersedes and is equivalent to MEM21016A Install and set up clocks

Application

This unit of competency defines the skills and knowledge required to set up and assemble pendulum clocks on site. It also covers testing and making running adjustments to ensure correct function and performance and applies to any clock repairer or vendor required to install, set up and test pendulum clocks on site, including in domestic residences and commercial buildings.

The most common application is usually a set-up and installation of new (long-case, wall or shelf) clocks or a set-up and installation after the return of serviced clocks to a customer's premises.

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

Band: A

Unit weight: 2

Pre-requisite Unit

MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Horology

Elements and Performance Criteria

Elements describe the essential outcomes.

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

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	Select and use appropriate personal protective equipment

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element. (PPE) in accordance with SOPs	
		1.4	Identify job requirements from specifications, job sheets or work instructions
2	Handle clocks, shipment and delivery	2.1	Verify and agree clock location requirements (environmental and architectural) with customer
		2.2	Prepare the clock for shipment/transport
		2.3	Arrange delivery, as required
		2.4	Pack parts to avoid damage in transit
		2.5	Complete clock handover with customer
3	Assemble and install clocks	3.1	Select and use appropriate tools and equipment
		3.2	Unpack components and verify completeness
		3.3	Install and stabilise clock case using appropriate methods and fixings
		3.4	Assemble clock and verify clock functions
4	Determine in-beat and adjust pendulum oscillating systems	4.1	Conduct in-beat assessment
		4.2	Identify in-beat adjustment method and perform adjustments
		4.3	Evaluate pendulum amplitude and action
5	Verify additional clock functions	5.1	Test and confirm correct striking and chiming sequence
		5.2	Adjust, as required, to ensure correct tone and harmony
		5.3	Set clock to time and confirm correct functioning of calendar and automatic night shut-off

Elements describe the essential outcomes.

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

- | | |
|--|---|
| 6 Conduct basic clock regulation techniques | 6.1 Set up and use timing equipment in a correct manner
6.2 Verify pendulum rate
6.3 Perform rate adjustments to achieve accurate timekeeping |
|--|---|

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.

Prepare the clock includes the following:

- separating and packaging of components
- partial dismantling of clock (pendulum and weights)
- secure gong rods/hammers

Clock handover includes the following:

- informing customer of features and characteristics of clock
- demonstrating winding and setting procedures for clock
- informing customer of operation/switching of any automatic night silent/shut-off for chiming/striking mechanism
- warranty information
- recording date of installation

Tools and equipment include one (1) or more of the following:

- hand tools
- drills
- spirit level
- power tools
- safety equipment, including personal protective equipment
- cleaning equipment

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.

Verify completeness includes the following:

- all components checked against packing slip/component list
- case parts, pendulum, weights and key
- striking and chiming rods, bells or tubes

Appropriate methods and fixings include one (1) or more of the following:

- suitable location/position identified:
 - level
 - stable
 - drafts
 - people traffic
- wedges
- floor and wall fixings

Clock functions include one (1) or more of the following:

- pendulum in-beat
- striking and chiming
- winding and setting
- calendar-moon phase

In-beat assessment includes the following:

- clock secure and level position
- pendulum assembly complete and correctly attached
- listen for evidence of even tick

In-beat adjustment method includes one (1) or more of the following:

- friction crutch
- cam wheel
- bending crutch
- automatic beat adjuster

Rate adjustments include one (1) or more of the following:

- effect of changing pendulum length (shortening = gain, lengthening = loss)
- methods of adjusting bob position
- French devices
- weight trays

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM21016A Install and set up clocks

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 MEM21016 Install and set up clocks

Modification History

Release 1. Supersedes and is equivalent to MEM21016A Install and set up clocks

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 and safe work practices
- verifying and agreeing on clock location requirements and preparing the clock for shipment/transport
- setting up and installing pendulum clocks using appropriate methods and fixings
- using appropriate tools and equipment to set up and install clocks
- unpacking components and verifying contents against packing slip/component list in accordance with manufacturer's specifications
- testing and adjusting clock functions
- interpreting timing test results and making rate adjustments to achieve accurate timing and performance.

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)
- types of clocks
- implications for correct set-up
- assessments, tests and correct operational function confirmation processes required
- set up and adjustment techniques
- wall and floor fixing methods
- tools and equipment for installation
- packaging methods and materials
- techniques to prevent transit damage
- types of power sources used in clocks
- precautions when handling clock cases
- major sections of mechanical clocks
- components and function of clocks.

Assessment Conditions

- Assessors must:
 - have vocational competency in installing and setting up clocks 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.

Links

Companion Volume implementation guides are found in VETNet -

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