



Australian Government

Department of Education, Employment and Workplace Relations

MEM21016A Install and set up clocks

Release: 1

MEM21016A Install and set up clocks

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency covers setting up and assembling pendulum clocks on site. It also covers testing and making running adjustments to ensure correct function and performance.
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Application of the Unit

Application of the unit	This unit of competency applies to any clock repairer or vendor required to install, set up and test pendulum clocks on site, such as 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. Band: A Unit weight: 2 points
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Handle clocks, shipment and delivery	1.1. Verify and agree clock location requirements (environmental and architectural) with customer 1.2. Prepare the clock for shipment/transport 1.3. Arrange delivery, as required 1.4. Pack parts to avoid damage in transit 1.5. Complete clock handover with customer
2. Assemble and install clocks	2.1. Select and use tools and equipment appropriately 2.2. Unpack components and verify completeness 2.3. Install and stabilise clock case using appropriate methods and fixings 2.4. Assemble clock 2.5. Verify clock functions
3. Determine in-beat and adjust pendulum oscillating systems	3.1. Conduct in-beat assessment 3.2. Identify in-beat adjustment method 3.3. Perform in-beat adjustment 3.4. Evaluate pendulum amplitude and action
4. Verify additional clock functions	4.1. Test and confirm correct striking and chiming sequence 4.2. Adjust, as required, to ensure correct tone and harmony 4.3. Set clock to time and confirm correct functioning of calendar and automatic night shut-off
5. Conduct basic clock regulation techniques	5.1. Set up and use timing equipment correctly 5.2. Verify pendulum rate correctly 5.3. Perform rate adjustments to achieve accurate timekeeping

Required Skills and Knowledge

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

REQUIRED SKILLS AND KNOWLEDGE

- packaging components
- handling and moving clock components and cases
- setting up and levelling clock cases
- using timing equipment
- adjusting the sound of the striking and chiming mechanisms
- interpreting timing test results
- making adjustments to achieve accurate timing and performance

Required knowledge

Required knowledge includes:

- types of clocks
- implications for correct set-up (e.g. wall, shelf, floor and specialty)
- 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
- occupational health and safety (OHS) regulations and procedures

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 install and set up clocks to industry standards, manufacturer specifications and in accordance with safety regulations and procedures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessors must be satisfied that the candidate can competently and consistently:

- safely package and handle clock components and cases
- set up and install pendulum clocks
- assemble clock components
- test and adjust clock functions and performance.

Context of and specific resources for assessment

- Assessment may occur on the job or in a simulated working environment. Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and information on workplace practices and OHS practices.
- Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
- Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.

Method of assessment

- Assessment must satisfy the endorsed Assessment Guidelines of the MEM05 Metal and Engineering Training Package.
- Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge.
- Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application.
- Assessment may be applied under project-related conditions (real or simulated) and require evidence of

EVIDENCE GUIDE	
	process. • Assessment must confirm a reasonable inference that competency is not only able to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Assessment may be in conjunction with assessment of other units of competency where required.
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate and the work being performed.

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.	
Prepare the clock	Prepare the clock may include: • separating and packaging of components • partial dismantling of clock (e.g. pendulum and weights) • secure gong rods/hammers
Clock handover	Clock handover may include: • 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	Tools and equipment may include: • hand tools

RANGE STATEMENT	
	• drills • spirit level • power tools • safety equipment, including personal protective equipment • cleaning equipment
Verify completeness	Verify completeness may include: • 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	Appropriate methods and fixings may include: • suitable location/position identified (e.g. level, stable, drafts and people traffic) • wedges • floor and wall fixings
Clock functions	Clock functions may include: • pendulum in-beat (e.g. automatic beat) • striking and chiming • winding and setting • calendar-moon phase
In-beat assessment	In-beat assessment may include: • clock secure and level position • pendulum assembly complete and correctly attached • listen for evidence of even tick
In-beat adjustment method	In-beat adjustment method may include: • friction crutch • cam wheel • bending crutch • automatic beat adjuster
Rate adjustments	Rate adjustments may include: • effect of changing pendulum length (shortening = gain, lengthening = loss) • methods of adjusting bob position (e.g. screw thread)

RANGE STATEMENT

	• French devices (e.g. adjustable suspension) • weight trays
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Unit Sector(s)

Unit sector	Horology
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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