



Australian Government

Department of Education, Employment and Workplace Relations

MEM21001A Replace watch batteries, capacitors and bands

Release: 1

MEM21001A Replace watch batteries, capacitors and bands

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency covers identifying with customers the battery or capacitor replacement need and/or the repair or replacement of bands. This unit also includes conducting any required water-resistance testing.
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Application of the Unit

Application of the unit	This unit of competency applies to the selection and replacement of electronic watch power sources and bands whilst operating in a watch service and repair workshop or jewellery store offering watch service and repair with access to the appropriate equipment. Applications may also be found in kiosks offering jewellery, key cutting, watch service and repair services. Some knowledge of watch glasses, gasket and other component removal procedures is required. However, this unit does not cover specific replacement procedures. Testing functions relate only to the measurement of voltage, consumption and resistance, and checking for case integrity. For example, when power cells are replaced, it is necessary to establish circuit performance by electrical testing and case integrity by water-resistance testing. To perform additional servicing of watch cases <i>MEM21003A Perform watch case servicing, repair and refurbishment</i> should be selected. 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. Establish servicing requirements and liaise with customer	1.1. Inspect watch condition and type and discuss performance concerns with customer 1.2. Verify and agree on servicing requirements with customer 1.3. Carry out pre-repair tests to verify water-resistance 1.4. Prepare watch for handover 1.5. Record and document repair process
2. Open and close watch cases	2.1. Select and use workshop tools and equipment appropriately 2.2. Identify watch and band construction and components 2.3. Open and close watch cases correctly 2.4. Inspect parts and report and record results 2.5. Verify gasket condition and replace, as required 2.6. Clean cases and bands, as required, during and after repair
3. Select and replace power sources	3.1. Remove power sources using appropriate tools and equipment 3.2. Inspect watch for battery leakage damage and clean or refer for further service, as appropriate 3.3. Assess physical condition of existing cell and its operation under load 3.4. Select, replace and secure appropriate replacement power sources 3.5. Perform integrated circuit resetting or all clear operations as required 3.6. Handle, store and dispose of power sources correctly and in accordance with environmental guidelines
4. Perform electrical testing	4.1. Set up and use multimeters correctly 4.2. Test cell terminal voltage under load using correct methods and equipment 4.3. Test watch circuitry for current consumption using correct methods and equipment 4.4. Confirm results against manufacturer specifications
5. Select and replace bands	5.1. Identify band attachment and removal method 5.2. Remove and replace bands and components, as necessary, using appropriate methods, tools and equipment

ELEMENT	PERFORMANCE CRITERIA
	5.3. Determine dimensions and type of replacement bands/ components required
6. Conduct water-resistance testing	6.1. Identify watches requiring water-resistance and/or pressure testing 6.2. Select appropriate water-resistance testing methods and equipment according to watch type 6.3. Set up and use equipment to verify results

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- identifying, handling and storing power cells, batteries and capacitors
- handling basic watch repairers' tools (e.g. tweezers, screwdrivers and eyeglasses)
- confirming correct selection of replacement cells by size, capacity and function
- using measuring tools (e.g. vernier callipers and band width gauges)
- setting up and using multimeters and interpreting readings
- conducting water-resistance testing
- communicating with customers

Required knowledge

Required knowledge includes:

- watch construction:
 - mechanical, electronic, digital, analog, duo, kinetic and auto quartz
 - function/features/design (e.g. basic operating principle for electronic watches)
- band construction, materials and components:
 - clasps, styles, materials and attachment methods
 - links, end pieces, clasps, buckles, chains, pins and spring bars
- operating principles of power cells, batteries, capacitors and voltages (1.55 V - 3 V)
- how to confirm battery capacity
- handling, storage and disposal procedures for watch power sources
- environmental guidelines and regulations relevant to the disposal of watch power

REQUIRED SKILLS AND KNOWLEDGE

sources

- multimeter types and how to set up, use and record values
- Australian standards for water-resistant watches
- methods of water-resistance testing for watches and advantages and disadvantages of each method
- 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 replace quartz or electronic watch power sources and bands 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:

- open and close watches without causing damage to watch or movement
- confirm watch movement's performance
- select correct replacement power sources for watch type and functions
- confirm watch case condition and water-resistance.

Context of and specific resources for assessment

- Assessment may occur on the job or in an appropriately simulated 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

EVIDENCE GUIDE	
	application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of 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.	
Preparing watch for handover	Preparing watch for handover may include: • confirm watch keeping on time • function checking (e.g. calendar, light, chronograph and alarm) • display setting (e.g. time, calendar and other multi-functions)
Electronic watch	Electronic watch includes watches with: • quartz crystal • kinetic mechanism • tunic fork • electronic balance
Record and document repair	Record and document repair may include: • date and extent of repairs completed

RANGE STATEMENT	
	• cost of components replaced or used • time spent on procedure • marking the date of fitting for replacement cell/code • electrical testing results (e.g. current consumption/ running time calculated) • water-resistance test results
Workshop tools and equipment	Workshop tools and equipment may include: • hand tools appropriate to watch case construction and repair of watches • personal protective equipment • non-conductive tweezers, case opening and closing tools, glass and case press, plastic sheet protection, cleaning brushes and rodico
Watch and band construction and components	Watch and band construction and components may include: • mechanical, electronic, digital, analog, duo, kinetic and auto quartz • bracelets, bands, clasps, styles, straps and material construction
Power sources	Power sources may include: • primary and secondary cells • silver oxide cells, including high, low and multi-drain types • capacitors • lithium
Band attachment and removal	Band attachment and removal may include: • springlug, tapered pin, cotter pin and screwed
Multimeters	Multimeters may include: • analog • digital • external power supplies • ampere • volts • Ohms
Water-resistance testing methods	Water-resistance testing methods may include: • Australian standard for watches and

RANGE STATEMENT	
	water-resistant/divers watches • vacuum or over pressure • air leak • water immersion • condensation test

Unit Sector(s)

Unit sector	Horology
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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