



**Australian Government**

# **MEM21001 Replace watch batteries, capacitors and bands**

**Release: 1**

## MEM21001 Replace watch batteries, capacitors and bands

### Modification History

Release 1. Supersedes and is equivalent to MEM21001A Replace watch batteries, capacitors and bands

### Application

This unit of competency defines the skills and knowledge required to select and replace electronic watch power sources and bands and includes conducting any required water-resistance testing.

It applies to work conducted in a watch service and repair workshop, kiosk or jewellery store with access to the appropriate equipment.

Where additional servicing of watch cases is to be performed unit MEM21003 Perform watch case servicing, repair and refurbishment should also be selected.

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	<b>Determine job requirements</b>	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	<p>1.3 Select and use appropriate personal protective equipment (PPE) in accordance with standard operating procedures</p> <p>1.4 Identify job requirements from specifications, job sheets or work instructions</p>
<p>2 <b>Establish servicing requirements and liaise with customer</b></p>	<p>2.1 Inspect watch condition and type and discuss performance concerns with customer</p> <p>2.2 Verify and agree on servicing requirements with customer</p> <p>2.3 Carry out pre-repair tests to verify water resistance</p> <p>2.4 Prepare watch for handover</p> <p>2.5 Record and document repair process</p>
<p>3 <b>Open and close watch cases</b></p>	<p>3.1 Select and use appropriate workshop tools and equipment</p> <p>3.2 Identify watch and band construction and components</p> <p>3.3 Open and close watch cases</p> <p>3.4 Inspect parts and report and record results</p> <p>3.5 Verify gasket condition and replace, as required</p> <p>3.6 Clean cases and bands, as required, during and after repair</p>
<p>4 <b>Select and replace power sources</b></p>	<p>4.1 Remove power sources using appropriate tools and equipment</p> <p>4.2 Inspect watch for battery leakage damage and clean or refer for further service, as appropriate</p> <p>4.3 Assess physical condition of existing cell and its operation under load</p> <p>4.4 Select, replace and secure appropriate replacement power</p>

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	sources
	4.5 Perform integrated circuit resetting or all clear operations, as required
	4.6 Handle, store and dispose of power sources in accordance with environmental guidelines
5 <b>Perform electrical testing</b>	5.1 Set up and use multimeters in a correct manner
	5.2 Test cell terminal voltage under load using correct methods and equipment
	5.3 Test watch circuitry for current consumption using correct methods and equipment
	5.4 Confirm results against manufacturer specifications
6 <b>Select and replace bands</b>	6.1 Identify band attachment and removal method
	6.2 Remove and replace bands and components, as necessary, using appropriate methods, tools and equipment
	6.3 Determine dimensions and type of replacement bands/components required
7 <b>Conduct water-resistance testing</b>	7.1 Identify watches requiring water-resistance or pressure testing
	7.2 Select appropriate water-resistance testing methods and equipment according to watch type
	7.3 Set up and use equipment to verify results

## 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.

**Preparing watch for handover includes one (1) or more of the following:**

- confirming watch keeping on time
- function checking (calendar, light, chronograph and alarm)
- confirming display setting (time, calendar and other multi-functions)

**The time keeping element in electronic watches includes one (1) or more of the following:**

- quartz crystal
- kinetic mechanism
- tuning fork
- electronic balance

**Watch construction and components include one (1) or more of the following:**

- mechanical
- electronic
- digital
- analog
- duo
- kinetic
- auto quartz

**Band construction and components include one (1) or more of the following:**

- bracelets
- bands
- clasps
- straps

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**Workshop tools and equipment include one (1) or more of the following:**

- hand tools appropriate to watch case construction and repair of watches
- PPE
- non-conductive tweezers
- case opening and closing tools
- glass and case press
- plastic sheet protection
- cleaning brushes
- rodico

**Power sources include one (1) or more of the following:**

- primary and secondary cells
- silver oxide cells, including high, low and multi-drain types
- capacitors
- lithium batteries

**Record and document repair includes one (1) or more of the following:**

- date and extent of repairs completed
- cost of components replaced or used
- time spent on procedure
- marking the date of fitting for replacement cell/code
- electrical testing results (current consumption/ running time calculated)
- water-resistance test results

**Band attachment and removal includes one (1) or more of the following:**

- springlug
- tapered pin
- cotter pin
- screwed

**Multimeters include one (1) or more of the following:**

- analog
- digital
- external power supplies
- ampere
- volts
- Ohms

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**Water-resistance testing methods include one (1) or more of the following:**

- Australian Standard for watches and water-resistant/divers watches
- vacuum or over pressure
- air leak
- water immersion
- condensation test

## Unit Mapping Information

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## Links

Companion Volume implementation guides are found in VETNet -

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