



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MEM21006A Service quartz watches**

**Release: 1**

## MEM21006A Service quartz watches

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	This unit of competency covers servicing techniques for quartz analog and digital display watches, including modules and case components.
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### Application of the Unit

<b>Application of the unit</b>	<p>This unit of competency applies to watch repairers working in watch service and repair centres and jewellery stores and kiosks offering watch service and repair. It is a common servicing requirement for watch repairers and may extend, in some cases, to the work of service technicians.</p> <p>Band: A</p> <p>Unit weight: 4 points</p>
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### Licensing/Regulatory Information

Not Applicable

### Pre-Requisites

<b>Prerequisite units</b>		
	MEM21005A	Diagnose faults in quartz watches
	MEM21002A	Perform watch movement exchange
	MEM21001A	Replace watch batteries, capacitors and bands

## Employability Skills Information

<b>Employability skills</b>	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. Determine servicing requirements and liaise with customer	1.1. Identify watch functions and features 1.2. Prepare written quotation and inform customer of watch condition and performance concerns 1.3. Outline recommended service procedures to be undertaken to remedy identified faults 1.4. Verify and agree servicing requirements with customer 1.5. Prepare watch for handover 1.6. Record and document repair process
2. Disassemble watch case and movement components for servicing	2.1. Establish appropriate working environment 2.2. Select and use workshop tools and equipment appropriately 2.3. Open and close watch cases correctly 2.4. Remove case movement and components without damaging or marking 2.5. Verify gasket condition and replace if required 2.6. Clean cases and bands, as required
3. Service watch case and movement components	3.1. Inspect condition of watch case and movement components 3.2. Confirm servicing requirements 3.3. Replace faulty or worn component parts 3.4. Clean components and parts 3.5. Inspect watch case and movement components for cleanliness and rectify imperfections/faults 3.6. Use correct tools and equipment for handling and servicing
4. Reassemble and test watch case and movement components	4.1. Reassemble watch case and movement components according to manufacturer specifications 4.2. Confirm correct assembly of gear train and other components 4.3. Use correct types and amounts of lubricant according to manufacturer specifications 4.4. Use tools and equipment appropriately taking precautions for correct reassembly 4.5. Verify/confirm watch functioning according to manufacturer specifications 4.6. Verify watch performance including rate testing and adjust, as required, according to manufacturer

ELEMENT	PERFORMANCE CRITERIA
	specifications

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

Required skills include:

- diagnosing and fault-finding quartz analog and digital watches
- dismantling and assembling quartz watch digital modules, movements, gear trains and sub-assemblies
- applying correct type and amount of lubrication
- using quartz timing and testing equipment
- communicating effectively
- interpreting manufacturer technical guides

#### Required knowledge

Required knowledge includes:

- quartz watch construction and components (i.e. analog, digital and duo displays)
- quartz watch operating principles (e.g. analog and digital)
- quartz watch lubrication techniques
- watch case and band construction and components
- client liaison techniques
- power sources
- power cells, batteries, capacitors and electronic storage units
- occupational health and safety (OHS) regulations and procedures

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>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.</p>	
<p><b>Overview of assessment</b></p>	<p>A person who demonstrates competency in this unit must be able to service quartz watches to industry standards, manufacturer specifications and in accordance with safety regulations and procedures.</p>
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>Assessors must be satisfied that the candidate can competently and consistently:</p> <ul style="list-style-type: none"> <li>• use correct disassembly/reassembly techniques</li> <li>• perform watch function and electrical performance testing</li> <li>• use appropriate watch movement/components cleaning techniques</li> <li>• apply lubrication techniques.</li> </ul>
<p><b>Context of and specific resources for assessment</b></p>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.</li> <li>• 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.</li> </ul>
<p><b>Method of assessment</b></p>	<ul style="list-style-type: none"> <li>• Assessment must satisfy the endorsed Assessment Guidelines of the MEM05 Metal and Engineering Training Package.</li> <li>• 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.</li> <li>• Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application.</li> <li>• Assessment may be applied under project-related</li> </ul>

<b>EVIDENCE GUIDE</b>	
	<p>conditions (real or simulated) and require evidence of process.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Assessment may be in conjunction with assessment of other units of competency where required.</li> </ul>
<b>Guidance information for assessment</b>	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

<b>RANGE STATEMENT</b>	
<p>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.</p>	
<b>Watch functions and features</b>	<p>Watch functions and features may include:</p> <ul style="list-style-type: none"> <li>• quartz oscillating stage</li> <li>• dividing stage</li> <li>• motor drive output pulses</li> <li>• capacitive output signals</li> <li>• current consumption</li> <li>• pulse generation</li> <li>• lower working limit test</li> <li>• gear train freedom</li> </ul>
<b>Record and document repair process</b>	<p>Record and document repair process may include:</p> <ul style="list-style-type: none"> <li>• extent and date of repair</li> <li>• cost of replacement part</li> <li>• time spent on procedure</li> </ul>
<b>Appropriate working environment</b>	<p>Appropriate working environment may include:</p> <ul style="list-style-type: none"> <li>• suitable watchmakers' bench</li> </ul>

<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>• clean and orderly work area (precautions taken to minimise dust)</li> <li>• adequate lighting and ventilation</li> <li>• ergonomic chair with adjustable height</li> </ul>
<b>Workshop tools and equipment</b>	<p>Workshop tools and equipment may include:</p> <ul style="list-style-type: none"> <li>• timing machine</li> <li>• multimeter</li> <li>• pulse generator</li> <li>• watch repair hand tools</li> <li>• case opening and closing tools</li> <li>• cleaning media</li> <li>• cleaning machines</li> <li>• lubricants</li> <li>• personal protective equipment</li> </ul>
<b>Movement and case components</b>	<p>Movement and case components may include:</p> <ul style="list-style-type: none"> <li>• quartz crystal</li> <li>• electronic circuits</li> <li>• coils</li> <li>• mechanical gear train</li> <li>• liquid crystal displays</li> <li>• watch glasses</li> <li>• case back</li> <li>• bezel (rotating)</li> <li>• crown</li> <li>• pendant</li> <li>• pushbuttons</li> </ul>
<b>Watch performance/rate testing</b>	<p>Watch performance/rate testing may include:</p> <ul style="list-style-type: none"> <li>• current consumption according to manufacturer specifications</li> <li>• rate testing (e.g. +0.25 - 0.3 seconds/day)</li> </ul>

## Unit Sector(s)

<b>Unit sector</b>	Horology
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## Co-requisite units

<b>Co-requisite units</b>		

## Competency field

<b>Competency field</b>	
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