



Australian Government

Department of Education, Employment and Workplace Relations

MEM21013A Service, test and adjust watch escapements

Release: 1

MEM21013A Service, test and adjust watch escapements

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency covers inspecting watch escapement components and operation, observing and rectifying faults, replacing components and adjusting action to achieve optimum timekeeping performance for a watch escapements e.g. Swiss lever
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Application of the Unit

Application of the unit	<p>This unit of competency applies to service, testing and adjustment work undertaken by a watch repair tradesperson on watch escapements. Work would normally be undertaken in watch service and repair centres and jewellery stores where service and repairs are offered.</p> <p>This unit has been developed for watch service and repair apprenticeship training and the recognition of trade-level skills in watch servicing and repair.</p> <p>Band: A</p> <p>Unit weight: 4 points</p>
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	MEM21012A	Service and repair mechanical watch oscillating systems
	MEM21009A	Inspect, diagnose, adjust and repair mechanical watches
	MEM21008A	Service mechanical watches
	MEM18001C	Use hand tools

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. Inspect watch escapement condition	1.1. Identify escapement type and construction 1.2. Inspect escapement components and condition 1.3. Observe escapement action for faults 1.4. Perform and confirm safety test action 1.5. Record and document repair process
2. Repair, replace and adjust watch escapement components	2.1. Adjust or replace components, as necessary 2.2. Adjust pallet stones for optimum performance 2.3. Adjust banking pins for optimum performance 2.4. Reconfirm safety test action
3. Test and adjust escapement function and performance	3.1. Verify and confirm escapement function and lubrication 3.2. Confirm escapement performance by assessing oscillator amplitude to manufacturer specifications 3.3. Reconfirm safety test action 3.4. Assess watch in various states of winding and position 3.5. Make adjustments, as necessary, to achieve performance within specification
4. Apply industry workshop standards to perform work	4.1. Use hand tools and equipment safely and correctly 4.2. Handle components without damaging or marking 4.3. Establish a clean and safe work environment

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills include:

- performing inspections, diagnosing faults and adjusting lever escapements
- replacing and adjusting pallet stones
- assessing watch escapement performance and timekeeping

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge includes:

- watch construction
- historic development and common types of escapements
- lever escapement function, operation, action, inspection and adjustment
- conduct escapement safety tests
- techniques for replacement/adjustment of pallet stones
- techniques for assessing watch escapement performance/timekeeping
- occupational health and safety (OHS) regulations and procedures

Evidence Guide

EVIDENCE GUIDE	
<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>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to inspect, adjust and repair watch escapements to industry standards, manufacturer specifications and in accordance with safety regulations and procedures.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>Assessors must be satisfied that the candidate can competently and consistently:</p> <ul style="list-style-type: none"> • identify faults in escapement condition and action • rectify escapement action by replacement and adjustment • correctly service/lubricate escapement • performance test escapements.
<p>Context of and specific resources for assessment</p>	<ul style="list-style-type: none"> • 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.
<p>Method of assessment</p>	<ul style="list-style-type: none"> • 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

EVIDENCE GUIDE	
	<p>conditions (real or simulated) and require evidence of process.</p> <ul style="list-style-type: none"> • 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	
<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>	
Equipment type and construction	<p>Escapement type and construction may include:</p> <ul style="list-style-type: none"> • recoil • frictional rest • detached • lever (Swiss or English) • co-axial • dual direct • chronometer (e.g. spring or pivoted detent) • cylinder • pin pallet • verge • duplex • semi-tangential • equidistant • circular
Escapement components and	Escapement components and condition may

RANGE STATEMENT	
condition	include: <ul style="list-style-type: none"> • escape wheel • lever • jewel pallet stones • fork • guard pin • roller and jewel • banking pins • alignment, division and end shake of escapement components
Safety test action	Safety test action may include: <ul style="list-style-type: none"> • clearance of horns • clearance of guard pin
Record and document repair	Record and document repair may include: <ul style="list-style-type: none"> • extent and date of repair • cost of replacement part • time spent on procedure
Hand tools and equipment	Hand tools and equipment may include: <ul style="list-style-type: none"> • escapemeter • pallet stone warmer (e.g. spirit lamp and electric warmer) • shellac • banking pin adjusting tools • timing machine • staking tool • watch servicing hand tools (e.g. roller remover, escapement files, burnishers and levers)
Clean and safe work environment	Clean and safe work environment may be specified through: <ul style="list-style-type: none"> • relevant legislation and regulations • enterprise operating procedures • 5S housekeeping related principles and procedures (e.g. sort, straighten, shine, standardise, sustain)

Unit Sector(s)

Unit sector	Horology
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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