Australian Government

MEM19022 Perform precision micro-mechanism diagnosis and servicing

Release: 1

MEM19022 Perform precision micro-mechanism diagnosis and servicing

Modification History

Release 1. Supersedes and is equivalent to MEM19022B Perform precision micro-mechanism diagnosis and servicing

Application

This unit of competency defines the skills and knowledge required to diagnose and service precision micro-mechanisms, including chronometer watch and clock components, to achieve performance to original specifications. It includes precision adjustment and testing to achieve timekeeping and water resistance specifications of completed timepieces.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: **A**

Unit Weight: **6**

Pre-requisite Unit

MEM07005	Perform general machining
MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12003	Perform precision mechanical measurement
MEM12023	Perform engineering measurements
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools
MEM18002	Use power tools/hand held operations
MEM18003	Use tools for precision work
MEM18055	Dismantle, replace and assemble engineering components
MEM19020	Fault find and maintain micro-mechanisms

MEM19021 Diagnose and service micro-mechanisms

Competency Field

Jewellery and horological

Elements and Performance Criteria

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	**Determine job requirements**	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times
		1.3	Use appropriate personal protective equipment (PPE) in accordance with SOPs
		1.4	Identify job requirements from specifications, drawings, job sheets or work instructions
2	**Adjust timing of precision micro-mechanisms**	2.1	Analyse and interpret data for precision timing of micro-mechanisms
		2.2	Make adjustments to achieve a constant rate to specifications
3	**Diagnose precision micro-mechanisms**	3.1	Select and use required high tolerance and precision tools and equipment
		3.2	Apply detailed inspection and testing techniques to diagnose and identify performance faults, condition and repair or servicing requirements
4	**Carry out precision micro-mechanism servicing**	4.1	Remove precision components and service and replace, as appropriate
		4.2	Adjust components to precision tolerances and specifications

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
5 **Repair and adjust chronograph mechanisms**	5.1 Adjust functional elements and test to ensure specifications are achieved
	5.2 Examine chronograph components and re-finish, as required

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.

Micro-mechanisms include one (1) or more of the following:

- mechanical watches and clocks
- electric watches and clocks
- pieces of recent manufacture
- restoration pieces
- chronometer timepieces
- day and date systems
- automatic winding systems
- generating systems
- alarm mechanisms
- striking and chiming mechanisms
- calendar mechanisms
- balance spring
- dynamic poising
- static poising
- truing balance (flat and round)
- chronograph mechanisms

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.

Assembly and subassembly components include one (1) or more of the following:

- balance staff
- pallet staff
- pallet jewels
- wheel trains
- power source
- mechanical oscillating systems
- motion work
- calendar systems
- escapement
- balance spring

Tools and equipment include one (1) or more of the following:

- mechanical hand tools
- electronic equipment to measure amplitude and rate
- electronic timing equipment
- diagnostic equipment and tools
- high-tolerance testing equipment
- specialist service tools for adjusting oscillating systems and chronograph mechanisms

Precision components include one (1) or more of the following:

- timekeeping elements, including:
  - balance staff
  - pallet staff
  - pallet jewels
  - wheel trains
- power source
- mechanical oscillating systems
- motion work
- calendar systems

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.

Inspections include one (1) or more of the following:

- high-tolerance clearances
- fits and adjustments
- functioning
- systems analysis
- performance analysis

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM19022B Perform precision micro-mechanism diagnosis and servicing

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2