Australian Government

MEM27016 Diagnose and maintain electronic controlling systems on mobile and stationary plant

Release: 1

MEM27016 Diagnose and maintain electronic controlling systems on mobile and stationary plant

Modification History

Release 1. Supersedes and is equivalent to MEM18047B Diagnose and maintain electronic controlling systems on mobile plant

Application

This unit of competency defines the skills and knowledge required to test, diagnose and fault find electronic control systems associated with mobile and stationary plant and equipment.

It applies to whole of equipment diagnosis and rectification and complements diagnostic and rectification skills contained in individual system units of competency.

Where electronic systems associated with communication between the mobile or stationary plant and external communication sources such as those used for remote guidance or monitoring unit MEM27018 Test, diagnose and rectify mobile and stationary plant external monitoring and control systems should also be selected.

Where the repair of electronic circuitry associated with these systems. is required unit MEM18056 Diagnose and repair analog equipment and components and unit MEM18057 Maintain/service analog/digital electronic equipment, should also be selected as appropriate.

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

Band: **A**

Unit Weight: **4**

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
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
MEM18055	Dismantle, replace and assemble engineering components

MEM27006	Diagnose and rectify batteries, low voltage sensors and circuits
MEM27023	Diagnose and rectify fieldbus circuits in mobile and stationary plant and equipment

Competency Field

Fixed and mobile plant

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	**Prepare for service or maintenance task**	2.1	Check service and operational records and discuss operational history with operator where relevant
		2.2	Identify control and bus systems used in mobile or stationary plant and locate control units and modules
		2.3	Inspect plant for obvious damage or wear to control units, modules or circuits
		2.4	Identify and select diagnostic benchmarks, methods, sequence, tests and testing processes according to manufacturer specification and workplace requirements
3	**Perform diagnostic tests on electronic**	3.1	Operate plant or equipment and undertake visual, aural and functional checks for obvious faults, including checking for warning gauges, lights and alerts

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
	controlling systems	3.2	Access and interpret fault codes, live data and freeze frame data using appropriate test procedures and equipment and precautions to safeguard electronic components and systems
		3.3	Interpret fault codes and other diagnostic test results to determine controlling systems requiring rectification
		3.4	Trace faults from fault codes using specified troubleshooting procedures
		3.5	Determine if fault is related to wiring, interference, components, modules or individual system controller
		3.6	Determine root cause of faults
4	**Rectify faulty electronic controlling systems**	4.1	Rectify faults through repair, replacement or reprogramming to required specification
		4.2	Clear fault codes from memory according to SOPs
		4.3	Test controlling system and components for correct operation
		4.4	Make adjustments, as required, to mechanical clearances and measured electrical and resistance values
5	**Change operating parameters**	5.1	Source appropriate specifications from plant/equipment identification and applicable manuals and specifications
		5.2	Select and use appropriate tooling (software/hardware)
		5.3	Obtain relevant security codes using plant/equipment identification
		5.4	Download, enter and verify data for new specifications

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.

Plant and equipment systems include one (1) or more of the following:	• discrete logic • analogue monitoring • microprocessor monitoring • control systems

Maintenance includes one (1) or more of the following:	• wiring harness faults
	• testing and identifying faulty:
	  • sensors
	  • actuators
	  • control components
	• replacing and making adjustments to:
	  • input components
	  • output components
	• accessing data from electronic control unit and applicable manufacturer software/hardware to change operating parameters

Input components include one (1) or more of the following:	• sensors • actuators • resistors • capacitors • diodes • transistors • integrated circuits (ICs) • erasable programmable read-only memory (EPROM) • microprocessors • joysticks

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.

Output components include one (1) or more of the following:	• hardware • software • hard copy devices • soft storage devices

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18047B Diagnose and maintain electronic controlling systems on mobile plant

Links

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