Australian Government

MEM23115 Evaluate fluid power systems

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM23115A Evaluate fluid power systems.

Application

This unit of competency defines the skills and knowledge required to evaluate hydraulic and pneumatic systems and components, including automated fluid power applications characterised by two or three actuators requiring digital control of valves and pre-set flow and pressure control.

It applies to the evaluation of manual and automated fluid power systems and components and the evaluation can be undertaken as part of a design or system selection process or to assess system condition, sustainability or efficiency.

It is suitable for people working as fluid power technicians or system designers, draftspersons and maintainers, and for those pursuing careers and qualifications in engineering or related disciplines.

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

Pre-requisite Unit

MEM23004 Apply technical mathematics

MEM23006 Apply fluid and thermodynamics principles in engineering

Competency Field

Engineering science

Elements and Performance Criteria

Elements	**Performance Criteria**
Elements describe the essential *outcomes.*	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Determine scope of fluid power system evaluation	1.1 Determine fluid power systems and components to be evaluated 1.2 Identify stakeholders to be consulted on the evaluation 1.3 Confirm that appropriate support, including technical and professional assistance, is available 1.4 Determine relevant work health and safety (WHS) and regulatory requirements, risk management and organisational procedures

Elements	Performance Criteria
Elements describe the essential *outcomes.*	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
	1.5 Investigate sustainability implications of fluid power applications
2. Identify principles and techniques required for evaluation of fluid power systems and components	2.1 Review features and functions of pneumatic systems and components for relevance to evaluation 2.2 Review features and functions of hydraulic systems and components for relevance to evaluation 2.3 Determine fluid power principles and techniques required to evaluate systems and select and optimise components. 2.4 Determine appropriate analysis techniques, software and software validation techniques
3. Evaluate fluid power systems and components	3.1 Assess fluid suitability, compatibility, and treatment relative to systems 3.2 Assess features, functions and suitability of hydraulic systems and components for applications 3.3 Assess features, functions and suitability of pneumatic components for applications 3.4 Assess suitability of fluid power system and components in automated power applications using two or three actuator hydraulic or pneumatic circuits with digital fluid and electrical or electronic control elements
4. Report results	4.1 Record outcomes of evaluation 4.2 Provide documentation including calculations, component, system layouts, functional diagrams, control signal diagrams and details of fluid power process

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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.	
Hydraulic applications include:	• mobile vehicles and plant • equipment for moving and positioning heavy loads • industrial machinery including presses for punching, drawing and forging • industrial and mobile braking systems.
Pneumatic applications include:	• transfer mechanisms for moving and positioning light loads • medium load clamping and stamping operations • compressed air distributed systems.
Sustainability includes:	• meeting all regulatory requirements • conforming to all industry covenants, protocols and best practice guides • minimising ecological and environmental footprint of process, plant and product • maximising economic benefit of process plant and product to the organisation and the community • minimising the negative WHS impact on employees, community and customer.
Appropriate licensed technical and professional assistance includes:	• technical support and advice relating to elements which have intrinsic dangers • professional support for technologies.
WHS, regulatory requirements and organisational procedures include:	• WHS acts, regulations and relevant standards • codes of practice from Australian and overseas engineering and technical associations and societies • risk assessments • registration requirements • safe work practices • state and territory regulatory requirements.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM23115A Evaluate fluid power systems.

Links

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