



**Australian Government**

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

# **MEM18023B Modify fluid power system operation**

**Release: 1**

## **MEM18023B Modify fluid power system operation**

### **Modification History**

Not Applicable

## Unit Descriptor

|                        |                                                                                                                                                             |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit descriptor</b> | This unit covers determining the requirements of the modification, undertaking the modification and evaluating the modified or repaired fluid power system. |
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## Application of the Unit

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <b>Application of the unit</b> | <p>Tasks undertaken are based on analysis of service / maintenance reports. Work is undertaken autonomously or in a team environment.</p> <p>Using sound working knowledge and principles of fluid power systems, defective components, sub-assemblies and design faults are identified and appropriate redesign action is commissioned. This action may include replacement of components, sub-assemblies using equivalent parts lists in manufacturers' catalogues. Preparation for redesign specifications and associated drawing changes / modifications are personally undertaken or delegated to appropriate personnel and supervised.</p> <p>Where the modification requires the knowledge of PLC program installation or commissioning, then Unit MEM10004B (Enter and change programmable controller operational parameters) and Unit MEM10005B (Commission programmable controller programs) should also be selected.</p> <p><b>Band: B</b></p> <p><b>Unit Weight: 8</b></p> |
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## Licensing/Regulatory Information

Not Applicable

## Pre-Requisites

| Prerequisite units |           |                                                                      |
|--------------------|-----------|----------------------------------------------------------------------|
| <b>Path 1</b>      | MEM09002B | Interpret technical drawing                                          |
|                    | MEM12023A | Perform engineering measurements                                     |
|                    | MEM12024A | Perform computations                                                 |
|                    | MEM12025A | Use graphical techniques and perform simple statistical computations |
|                    | MEM18001C | Use hand tools                                                       |
|                    | MEM18002B | Use power tools/hand held operations                                 |
|                    | MEM18003C | Use tools for precision work                                         |
|                    | MEM18006C | Repair and fit engineering components                                |
|                    | MEM18010C | Perform equipment condition monitoring and recording                 |
|                    | MEM18016B | Analyse plant and equipment condition monitoring results             |
|                    | MEM18018C | Maintain pneumatic system components                                 |
|                    | MEM18019B | Maintain pneumatic systems                                           |
|                    | MEM18020B | Maintain hydraulic system components                                 |
|                    | MEM18021B | Maintain hydraulic systems                                           |
|                    | MEM18022B | Maintain fluid power controls                                        |
|                    | MEM18055B | Dismantle, replace and assemble engineering components               |

## 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 modification requirements                          | 1.1. Service/maintenance reports and system output information is interpreted and analysed correctly.<br>1.2. Using knowledge and principles of fluid power systems, defective components, sub-assemblies and design faults are identified.<br>1.3. Defective components and design faults are verified using appropriate means and techniques.<br>1.4. Corrective action plan is researched and developed in consultation with appropriate personnel.<br>1.5. Modification/design options are investigated to overcome parts failure or design faults.<br>1.6. Most appropriate modifications design option is developed, selected and specifications are prepared. |
| 2. Undertake modifications to fluid power systems               | 2.1. Replacement components are selected from manufacturers catalogue to meet specifications.<br>2.2. Modifications are undertaken or delegated to appropriate personnel and supervised.<br>2.3. Modifications are recorded and documented according to standard operating procedures.                                                                                                                                                                                                                                                                                                                                                                               |
| 3. Monitor and evaluate repaired or modified fluid power system | 3.1. Modified/repaired fluid power systems are monitored and operation system is assessed for compliance with operational specifications.<br>3.2. Modifications/repairs are evaluated for effectiveness, efficiency and compliance with operational specifications.<br>3.3. Where applicable, further corrective action is recommended to appropriate personnel, instigated and monitored until desired efficiencies/outcomes are achieved.<br>3.4. Evaluation reports are completed to standard operating procedures.                                                                                                                                               |

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

**REQUIRED SKILLS AND KNOWLEDGE****Required skills**

Look for evidence that confirms skills in:

- obtaining, interpreting and analysing service/maintenance reports and system output information
- planning and sequencing operations
- checking and testing components/sub-assemblies for conformance to specification
- confirming design faults
- obtaining relevant information with respect to the modification requirements
- developing an appropriate action plan to overcome system problems
- undertaking modifications to fluid power systems where appropriate
- delegating work to appropriate personnel where appropriate and supervising work
- recording/reporting modifications to the fluid power system
- checking the operation of the modified/repaired fluid power system for compliance with operational specifications
- initiating and monitoring further corrective action, where applicable
- confirming that desired outcomes are achieved
- preparing evaluation reports on the modifications/repairs

**Required knowledge**

Look for evidence that confirms knowledge of:

- fluid power system performance, faults history and variations from operational specification
- faults attributable to poor design
- defective components/sub-assemblies
- appropriate test equipment and applications
- techniques for verifying design faults
- personnel to be consulted during the modification process
- sources of information relevant to the modification requirements
- the specifications pertaining to the selected modification/design option
- the modification/design options available to overcome system faults
- the cost and benefits associated with the available options
- the most appropriate modification/design option
- the procedures for undertaking the selected modification/design option
- replacement components conforming to predetermined specifications from manufacturer's catalogues
- the modifications to be undertaken
- the requirements for recording/reporting modifications to fluid power systems
- the revised operational specification of the fluid power system
- the frequency of checks for compliance against operational specifications

**REQUIRED SKILLS AND KNOWLEDGE**

- the effectiveness and efficiency of the modifications/repairs
- any variations from operational specifications
- any further modifications/repairs that could improve the effectiveness and efficiency of the fluid power system
- personnel to whom recommendations are to be made
- the appropriate reporting requirements
- hazards and control measures associated with modifying fluid power system operation, including housekeeping
- safe work practices and procedures

## Evidence Guide

### EVIDENCE GUIDE

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.

#### Overview of assessment

A person who demonstrates competency in this unit must be able to modify fluid power system operation  
Competency in this unit cannot be claimed until all prerequisites have been satisfied.

#### Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.

#### Context of and specific resources for assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with modifying fluid power system operation or other units requiring the exercise of the skills and knowledge covered by this unit.

#### Method of assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

**EVIDENCE GUIDE****Guidance information for assessment****Range Statement****RANGE STATEMENT**

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.

**Modification**

Modifications covered by this unit are changes to fluid power systems and equipment that lead to desired changes in system performance

**Analysed**

Interpretation and integration of data from process controls, instrumentation and condition monitoring systems and consultation with appropriate personnel

**Unit Sector(s)****Unit sector****Co-requisite units****Co-requisite units**

## Competency field

|                  |                         |
|------------------|-------------------------|
| Competency field | Maintenance&diagnostics |
|------------------|-------------------------|