



Australian Government

Department of Education, Employment and Workplace Relations

MEM18026C Test compression ignition fuel systems

Release: 1

MEM18026C Test compression ignition fuel systems

Modification History

Not Applicable

Unit Descriptor

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| Unit descriptor | This unit covers assessing operation of compression ignition fuel systems. |
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Application of the Unit

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| Application of the unit | <p>Operation of plant and equipment would be performed within the person's licensing limits or as determined by relevant regulations. This unit applies to work conducted on any diesel fuel system - the tank, filters, pump, injectors and governors. Replacement would require the person to time the high-pressure fuel pump or injectors to engine. Final adjustment may include the setting of low/high or no load/full load speed and/or droop, sensitivity, stability, promptness etc.</p> <p>Band: A</p> <p>Unit Weight: 4</p> |
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Licensing/Regulatory Information

Refer to Application of the Unit

Pre-Requisites

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| Prerequisite units | | |
| Path 1 | MEM12023A | Perform engineering measurements |
| | MEM18001C | Use hand tools |

Employability Skills Information

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| Employability skills | This unit contains employability skills. |
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Elements and Performance Criteria Pre-Content

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| 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. Assess fuel system operation | <ul style="list-style-type: none">1.1. Fuel injection principles and component part functions/operation are understood.1.2. Plant/equipment is started, operated and shut down to prescribed procedures.1.3. Checks are undertaken safely and to prescribed procedures.1.4. Flows, pressures and speeds are correctly determined and recorded.1.5. Plant operating characteristics and parameters are understood.1.6. Data is correctly interpreted regarding serviceability.1.7. Faults are correctly interpreted regarding serviceability.1.8. Governing characteristics and terminology are understood.1.9. Test equipment is used correctly. |

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Look for evidence that confirms skills in:

- reading, interpreting and following information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
- planning and sequencing operations
- checking task-related information
- checking for conformance to specification
- starting/operating and shutting down diesel plant/equipment
- conducting operational checks of the diesel fuel system
- determining and recording fuel flows, pressures and engine speed
- determining the serviceability of the fuel system from the test results and plant operating characteristics and parameters
- using test equipment

REQUIRED SKILLS AND KNOWLEDGE

- undertaking calculations and numerical operations within the scope of this unit
- recording and reporting service activities

Required knowledge

Look for evidence that confirms knowledge of:

- the principles of fuel injection
- the function/operation of each component in a fuel injection system
- the procedures for starting up, operating and shutting down diesel plant and equipment
- the operational checks to be made on the diesel fuel system and procedures for carrying out checks
- the methods of determining flows, pressures and speeds and the tools, techniques and equipment to be used
- the procedures for carrying out and recording the above tests
- the plant operating characteristics and parameters
- the reasons for the decisions made with respect to serviceability
- likely faults and causes for unserviceable systems
- the principles of governing and the function of the governor on the given plant/equipment
- hazards and control measures associate with testing compression ignition fuel systems, 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 test compression ignition fuel systems. 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 testing compression ignition fuel systems, 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.

Component

Fuel system components include tank, filters, diesel injectors, fuel pumps and governing apparatus

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

Competency field

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| Competency field | Maintenance and diagnostics |
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