<table>
<thead>
<tr>
<th>Training Package</th>
<th>Metal and Engineering (MEM05)</th>
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</thead>
<tbody>
<tr>
<td>Title</td>
<td><strong>Dismantle, replace and assemble engineering components</strong></td>
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<tr>
<td>Unit code</td>
<td>MEM18055B</td>
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<tr>
<td>Competency field</td>
<td>Maintenance &amp; diagnostics</td>
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<tr>
<td>Band</td>
<td>A</td>
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<tr>
<td>Unit weight</td>
<td>3</td>
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<tr>
<td>HSC Indicative Hours</td>
<td>30</td>
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**Unit descriptor**
This unit covers dismantling and identifying faulty components, selecting replacements, and assembling engineering components into assemblies or sub-assemblies in accordance with standard operating procedures.

**Prerequisites**
MEM09002B Interpret technical drawing  MEM12023A Perform engineering measurements MEM18001C Use hand tools MEM18002B Use power tools/hand held operations

**Application of the competency**
This unit involves dismantling, checking, replacing and assembling engineering components in accordance with standard operating procedures. All specifications are interpreted from manufacturers' manuals, engineering drawings, detailed/technical sketches and associated data sheets. Tasks are undertaken utilising engineering principles, designated procedures, appropriate tools, equipment and safe workshop practices. Work is undertaken autonomously or in a team environment using predetermined standards of quality, safety and workshop procedures.

**Related units**
Where fitting techniques and principles are required to assess component condition, and/or modify components to achieve precision fits, unit MEM18006B (Repair and fit engineering components) should also be selected.

Where precision mechanical measurement is required, then Unit MEM12003B (Perform precision mechanical measurement) should also be selected.

**Evidence Guide**
The evidence guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the unit descriptor, performance criteria, range statement and the assessment guidelines for the Metal and Engineering Training Package.

**Overview of assessment requirements**
A person who demonstrates competency in this unit must be able to dismantle, replace and assemble engineering components. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

**Context of 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.

**Interdependent assessment**
This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with dismantling, replacing and assembling engineering components 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...
<table>
<thead>
<tr>
<th>Context of assessment cont/d</th>
<th>Method of assessment cont/d</th>
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</thead>
<tbody>
<tr>
<td>or as part of a team. The assessment environment should not disadvantage the candidate.</td>
<td>documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.</td>
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<tr>
<td>access to all tools, equipment, materials and</td>
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**Consistency of performance**

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.

**Required skills**

Look for evidence that confirms skills in:
- obtaining and interpreting all relevant instructions, standard operating procedures, drawings and specifications
- preparing component for dismantling
- dismantling components using appropriate techniques, tools and equipment
- marking component parts appropriately for identification purposes
- checking components visually and dimensionally for conformance to specification
- where appropriate, marking faulty parts for repair, replacement or adjustment
- selecting and confirming replacement parts to specifications
- obtaining and using all relevant supplier catalogues
- preparing and assembling components using appropriate techniques in accordance with standard operating procedures
- where appropriate, applying lubricants correctly to the assembly in accordance with specifications and standard operating procedures
- where appropriate, applying packing and/or sealing materials in accordance with specifications and standard operating procedures
- inspecting and checking the final assembly for conformance to specification
- where appropriate, returning the final assembly to use.

**Required knowledge**

Look for evidence that confirms knowledge of:
- tasks to be performed in accordance with standard operating procedures
- procedures for dismantling the assembly
- tools and equipment to be used to dismantle the components
- procedures and required equipment for checking components for conformance to specification
- specifications of the components to be replaced
- features and/or dimensions upon which replacement parts are to be selected
- process of identifying replacement parts from "third party" suppliers' catalogues
- procedures for assembling components
- requirements of the assembly in terms of specifications, operational performance, quality and safety
- procedures for lubricating the assembly materials
- checks to be undertaken during inspection of the final assembly
- procedures for returning components/assemblies into use
- hazards and control measures associated with dismantling, replacing and assembling engineering components, including housekeeping
- safe work practices and procedures.

**Key Terms and Concepts**

- conformance to specifications
- engineering component specifications
- engineering components, assemblies and sub-assemblies
- final component assembly
- identification of damaged/faulty components
- inspection procedures
- lubrication
- operational specifications and performance
- packing and sealing materials
- personal protective equipment (PPE)
- preparation of engineering components/assemblies for dismantling
- repair, replacement or adjustment of damaged/faulty components
- requirements of the assembly
- safe work practices and procedures
- selection of tools and equipment
- sources for specifications
- standard operating procedures (SOP)
- task requirements
- techniques for dismantling, assembling and replacing engineering components, assemblies and sub-assemblies
- techniques to mark engineering components
- testing techniques
- third party catalogues
- use/application of engineering components
- work instructions and procedures
- working knowledge of tools and equipment
- workplace documentation.
<table>
<thead>
<tr>
<th>Elements</th>
<th>Performance criteria</th>
<th>Range Statement</th>
<th>HSC Requirements and Advice</th>
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</table>
| 1 Dismantle engineering components | 1.1 *Engineering components* are inspected and task requirements are analysed. | The range statement provides information about the context in which the unit of competency is carried out. The variables [in bold] and scope [dot points] cater for different work requirements, work practices and knowledge between States, Territories and the Commonwealth, and between organisations and workplaces. The range statement relates to the unit as a whole and provides a focus for assessment. Text in italics in the performance criteria is explained here. The following variables may be present and may include, but are not limited to, the examples listed under the scope. All work is undertaken to relevant legislative requirements, where applicable. | **Learning experiences for the HSC must address:** A range of sources for work instructions/task requirements and procedures including:  
- work schedules  
- job card/sheet/plans/specifications  
- standard operating procedures (SOP)  
- standard operation sheets  
- Material Safety Data Sheets (MSDS)  
- engineering drawings  
- diagrams/sketches  
- associated data sheets  
- regulations/legislation  
- manufacturer/workplace guidelines, policies and procedures  
- Australian Standards.  
Knowledge of the specifications and use/application of a range of engineering components. Techniques for dismantling, replacing and assembling a range of engineering components/assemblies, according to SOP. Inspection procedures and/or testing techniques to identify faulty engineering components. Safe work practices and procedures. Hazard identification and risk control. |
| | 1.2 *Appropriate tools and equipment* are selected and component/s are prepared for dismantling. | *Appropriate tools and equipment*  
- includes a range of component parts found in equipment or product assemblies, sub-assemblies, e.g. couplings, universal joints, pumps etc. employing shafts, pre-manufactured bearings and seals, lubricants, fasteners, gaskets etc. | **Learning experiences for the HSC must address:** Knowledge of a range of tools and equipment appropriate for dismantling, replacing and assembling engineering components including:  
- name  
- characteristics  
- use/application  
- limitations  
- hazard controls  
- maintenance. |
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| 1.3 | Component is dismantled using standard operating procedures, tools and equipment. | | Consideration/s for the selection of tools and equipment including:  
• skills/training  
• time  
• cost  
• occupational health and safety (OHS) requirements  
• appropriateness for purpose.  
SOP for the preparation of a range of engineering components/assemblies for dismantling. |
| Learning experiences for the HSC must address:  
Safe work practices for using tools and equipment including:  
• following SOP and manufacturer’s specifications before, during and after use  
• risk management (identifying hazards and implementing control measures)  
• correct manual handling  
• safe handling, application and storage of hazardous substances  
• appropriate use of personal protective equipment (PPE)  
• regular servicing and maintenance of tools and equipment  
• selection of appropriate tool for use  
• working with electricity in a safe manner  
• adequate ventilation  
• attaching appropriate safety guards where required.  
Use and application of a range of PPE including:  
• footwear  
• head protection  
• gloves  
• protective clothing  
• respirator  
• face mask/shield  
• hearing protection  
• eye protection.  
Importance of correct fitting PPE. |
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<tr>
<td></td>
<td></td>
<td></td>
<td>Dismantling of a range of engineering components (of varying degrees of difficulty).</td>
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<td><strong>Learning experiences for the HSC must address:</strong></td>
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<td>An awareness of the importance of correctly and clearly marking each part of engineering components.</td>
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<td>Techniques to mark engineering components.</td>
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<td>1.4</td>
<td>Engineering components are clearly marked to aid reassembly.</td>
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<tr>
<td>2 Identify faulty components</td>
<td>2.1 Specifications for components are obtained from appropriate source and are interpreted and understood.</td>
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<td><strong>Learning experiences for the HSC must address:</strong></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>A range of sources to obtain specifications for engineering components including:</td>
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<td></td>
<td></td>
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<td>• manufacturer’s manuals</td>
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<td></td>
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<td>• engineering drawings</td>
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<td></td>
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<td>• detailed technical sketches</td>
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<td>• associated data sheets.</td>
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<td><strong>Learning experiences for the HSC must address:</strong></td>
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<td>SOP and equipment for assessing conformance of engineering components to specifications including:</td>
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<td>• visual checks</td>
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<td>• dimensional checks.</td>
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<td>Identification of the specifications of the component to be replaced.</td>
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<td><strong>Learning experiences for the HSC must address:</strong></td>
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<td></td>
<td>An awareness of the importance of correctly and clearly marking faulty components for repair or replacement or adjustment.</td>
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<td>2.2</td>
<td>Damaged or faulty components are assessed against specifications according to standard operating procedures.</td>
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<td><strong>Learning experiences for the HSC must address:</strong></td>
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<td>Workplace procedures and documentation for:</td>
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<td></td>
<td></td>
<td></td>
<td>• identifying replacement parts found in catalogues</td>
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<td>2.3</td>
<td>Faulty components are identified for repair, replacement or adjustment according to standard operating procedures.</td>
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<td>3 Select replacement components</td>
<td>3.1 Where applicable, replacement and/or repaired parts are selected for reassembly according to standard operating procedures.</td>
<td>Selected replacement parts are selected from manufacturers' catalogues, etc.</td>
<td><strong>Learning experiences for the HSC must address:</strong></td>
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<tr>
<td></td>
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<td></td>
<td>A range of manufacturer/supplier ('third party') catalogues.</td>
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<td>Workplace procedures and documentation for:</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• identifying replacement parts found in catalogues</td>
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| 4 Assemble engineering components into assemblies or sub-assemblies | 4.1 Appropriate techniques are applied in the preparation, assembly and adjustment of components using fastening equipment and methods which ensure conformance to specifications, operational performance, quality and safety of the completed assembly according to standard operating procedures. | **Appropriate techniques**  
- are in accordance with standard operating procedures and may include the straightforward removal and replacement of pre-manufactured bearings and seals. | **Learning experiences for the HSC must address:**  
Preparation, assembly and adjustment of a range of engineering components (of varying degrees of difficulty) into assemblies or sub-assemblies.  
Knowledge of requirements of the assembly in terms of:  
- specifications  
- operational performance  
- quality  
- safety. |
| 4.2 Correct lubrication, packing, sealing materials are selected and applied correctly in conformance to job specifications. | **Learning experiences for the HSC must address:**  
Workplace techniques for:  
- lubricating engineering components  
- application of packing and/or sealing materials. | | |
| 4.3 Final component assembly is inspected, tested and adjusted as necessary for compliance with operational specifications and returned to use according to standard operating procedures. | **Learning experiences for the HSC must address:**  
A definition of:  
- compliance  
- operational specifications.  
Knowledge of compliance inspections/tests/checks to be undertaken to ensure quality assurance of assembled product.  
SOP for non-conformance of assembled product to specifications.  
Procedures for returning components/assemblies into use.  
Housekeeping/clean-up procedures with due consider OHS and the environment. | | |