



**Australian Government**

# **MEMPE007A Pull apart and re-assemble engineering mechanisms**

**Release 1**

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## **Modification History**

New unit - Release 1

## **Unit Descriptor**

This unit of competency involves pulling apart engineering mechanisms, such as small compressors, small two and four stroke engines, industrial gear boxes, mechanical winches, or any mechanism made up of a number of components, determining the types and quantity of components in the mechanism, and re-assembling the mechanism.

The mechanisms must have an associated maintenance/instruction manual for the learner to reference.

## **Application of the Unit**

This unit is designed for use in a pre-employment skills introduction program and is suitable for use in conjunction with institutional-based vocational programs. Skills development will take place under direct supervision.

This unit is not to be used in a traineeship or apprenticeship training program or associated qualifications. It is only to be used in pre-employment programs and carries no credit towards apprenticeship/trade and other qualification types in manufacturing and engineering.

This unit could be integrated with the work in the project unit, *MEMPE006A Undertake a basic engineering project*, and skills developed when required by the project. It would certainly be integrated with the development of skills for the unit *MEM18001B Use hand tools* and could be used to enhance the research learning about components in the project unit.

## **Licensing/Regulatory Information**

Not applicable.

## **Pre-Requisites**

Not applicable.

## Employability Skills Information

This unit contains employability skills.

## 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.

## Elements and Performance Criteria

- |   |                          |     |  |
|---|--------------------------|-----|--|
| 1 | Prepare a job plan       | 1.1 | Identify job requirements by inspecting the mechanism, <i>associated</i> manual and other relevant materials, in consultation with an instructor/teacher/trainer |
|   |                          | 1.2 | Identify required tools and machines in accordance with job requirements   |
|   |                          | 1.3 | Prepare a job/project plan showing tools and machines to be used and an appropriate sequence of operations   |
|   |                          | 1.4 | Confirm plan with instructor   |
| 2 | Pull the mechanism apart | 2.1 | Use and wear appropriate personal protective equipment   |
|   |                          | 2.2 | Clear the work area  |
|   |                          | 2.3 | Obtain appropriate tools and equipment   |
|   |                          | 2.4 | Follow safe working practices  |
|   |                          | 2.5 | Pull the mechanism apart marking components to aid correct re-assembly   |
|   |                          | 2.6 | Identify and record the name and quantity of each component  |
|   |                          | 2.7 | Use <i>measuring equipment</i> as required   |

- |   |                            |     |   |
|---|----------------------------|-----|---|
| 3 | Re-assemble the mechanism  | 3.1 | Use and wear appropriate personal protective equipment                        |
|   |                            | 3.2 | Follow safe working practices   |
|   |                            | 3.3 | Re-assemble the mechanism following markings and associated manual            |
|   |                            | 3.4 | Use measuring equipment as required   |
| 4 | Complete work requirements | 4.1 | Clear work area of waste and clean according to requirements                  |
|   |                            | 4.2 | Maintain and/or store machines, tools and equipment according to instructions |

## **Required Skills and Knowledge**

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

### **Required skills**

Required skills include:

- preparing a job plan
- preparing for disassembly
- performing disassembly
- identifying components
- performing re-assembly
- using measuring equipment as required
- cleaning and storing equipment appropriately
- applying safe working practices
- using and applying personal protective equipment

### **Required knowledge**

Required knowledge includes:

- safe working procedures
- non-destructive methods for marking components
- basic disassembly techniques
- use and care of tools
- types of tools and machines used to pull components apart
- safe working practices
- use and application of personal protective equipment

## 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.

<b>Overview of assessment</b>	A person who demonstrates competency in this unit must be able to safely use engineering tools and equipment to pull engineering mechanisms apart, record information about the components and put the mechanism back together again.
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	Assessors must be satisfied that the candidate can <ul style="list-style-type: none"> <li>• work safely</li> <li>• prepare job plans</li> <li>• identify and follow a sequence of work</li> <li>• prepare for pulling a mechanism apart</li> <li>• pull a mechanism apart</li> <li>• record information</li> <li>• use measuring equipment as required</li> <li>• re-assemble an engineering mechanism</li> <li>• clean and store equipment as instructed.</li> </ul>
<b>Context of and specific resources for assessment</b>	<ul style="list-style-type: none"> <li>• This unit must be assessed in a learning institution.</li> <li>• Assessment must cover the successful disassembly and re-assembly of an engineering mechanism.</li> <li>• The skills covered by this unit would usually be demonstrated by an individual working alone under direct supervision.</li> <li>• The assessment environment should not disadvantage the candidate.</li> <li>• This unit may be assessed in conjunction with any other units addressing the safety, quality, communication, hand tools, machine operation, recording and reporting associated with working on engineering mechanisms.</li> </ul>
<b>Method of assessment</b>	<ul style="list-style-type: none"> <li>• Assessment must satisfy the endorsed Assessment Guidelines of the MEM05 Metal and Engineering Training Package.</li> <li>• Assessment methods must be by direct observation of tasks and include questioning on underpinning</li> </ul>

	<p>knowledge to ensure correct interpretation and application.</p> <ul style="list-style-type: none"><li>• Assessment must confirm a reasonable inference that competency is not only able to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.</li><li>• Assessment should be in conjunction with assessment of the project unit and other units integrated into the project.</li></ul>
<b>Guidance information for assessment</b>	<p>Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate and the work being performed.</p>

## 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.

<b>Mechanism</b>	<p>A mechanism is any piece of equipment, plant or machinery made up of a number of engineering components. The mechanism should be of a size that can be safely handled by the students and may include but are not limited to:</p> <ul style="list-style-type: none"><li>• small compressors</li><li>• small two and four stroke engines</li><li>• industrial gear boxes</li><li>• mechanical winches</li></ul>
<b>Measuring equipment</b>	<p>Measuring equipment may include but is not limited to:</p> <ul style="list-style-type: none"><li>• micrometers</li><li>• vernier scaled measuring devices</li><li>• rules</li><li>• calipers</li><li>• gauges</li></ul>

## Unit Sector(s)

Competency field

Unit sector

## Custom Content Section

Not applicable.