

**CARAVAN INDUSTRY NATIONAL COMPETENCY  
STANDARDS**

**GENERAL  
METALS AND ENGINEERING**



***Unit MEM5.5AA***

***Carry Out Mechanical Cutting***

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**Unit Descriptor** This unit deals with the skills and knowledge to carry out mechanical cutting. This unit is from the Metals and Engineering Industry Competency Standards.

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<b>Element</b>	<b>Performance Criteria</b>
<p><b>1 Determine job requirements</b></p>	<ul style="list-style-type: none"> <li>• Job specifications requirements are determined from job sheets and/or instructions.</li> <li>• Appropriate method/machine is selected to meet specifications.</li> <li>• Machine is loaded and adjusted appropriately for operation consistent with standard operating procedures.</li> </ul>
<p><b>2 Select/set up machine tooling</b></p>	<ul style="list-style-type: none"> <li>• Most appropriate tooling is selected.</li> <li>• Tooling is correctly installed using standard operating procedures.</li> <li>• Machine is set up and adjusted using standard operating procedures.</li> </ul>
<p><b>3 Operate mechanical cutting machine</b></p>	<ul style="list-style-type: none"> <li>• Appropriate stops and guards are set and adjusted as required.</li> <li>• Material is secured and correctly positioned using measuring equipment as necessary.</li> <li>• Machine is started and stopped safely to standard operating procedures.</li> <li>• Machine is operated to cut material to specifications using standard operating procedures.</li> </ul>
<p><b>4 Check material for conformance to specification</b></p>	<ul style="list-style-type: none"> <li>• Material is checked against specification. Machine and/or tooling is adjusted as required and in process adjustments carried out as necessary.</li> <li>• Material is cut or holed within workplace tolerances.</li> <li>• Material is used in most economical way.</li> </ul>

### ***Range of Variables***

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- This unit may cover the operation of a number of the following activities including sawing and shearing, and/or cropping.
- Materials may include ferrous and non-ferrous metals and non-metallic products. This unit includes the set up and operation of a range of mechanical cutting equipment. Examples of machines that could be covered include guillotines, croppers, cold saws, band saws, automatic saws etc.
- This unit does not cover hand or hand held power tools used for cutting purposes eg: circular saws, nibblers and side grinder. These skills are covered by other units, see Unit 18.1A (Use hand tools) and Unit 18.2A (Use power tools / hand held operations). Typical applications of this unit may include cutting for manufacture, production cutting and cutting of materials selected from stores in a maintenance environment.
- Work is undertaken autonomously or as part of a team environment to predetermined standards of quality, safety and workshop procedure. This unit does not include skills required for operational maintenance of the equipment used, these skills are covered by Unit 7.1A (Operational maintenance of machines / equipment). For repair and welding of band saw blades where blade repair unit is not attached to the machine, refer to Unit 5.13A (Perform manual production welding). (Please note that unit 7.1A has not been imported into the Caravan Industry Training Package).

## ***Evidence Guide***

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### **Underpinning Skills and Knowledge:**

- To demonstrate competence, knowledge of and compliance with Codes of Practice of the Recreational Vehicle Manufacturers Association of Australia (RVMAA).
- Work must comply with occupational health and safety regulations, when assembling and or constructing components.
- To demonstrate competence, evidence of skills and knowledge in the following areas is required:
  - instructions and specifications
  - reporting procedures
  - assembly and testing of a typical range of components installed and manufactured by the organisation
  - machines and equipment
  - correct and safe use of tools and equipment
  - personal protective equipment
  - planning and organisation of work
  - maintenance of the work area.

### **Context of Assessment:**

- This unit may be assessed on-the-job, off-the-job or a combination of both.
- The competencies covered by this unit may be demonstrated by an individual working alone or as part of a team.
- The assessment environment should not disadvantage the candidate.

### **Assessment Conditions**

- The candidate will have access to all tools, equipment, materials and documentation required.
- The candidate will be permitted to refer to the following documents:
  - any relevant workplace procedures
  - any relevant product and manufacturing specifications
  - any relevant codes, standards, manuals and reference materials.

## **Competency Standards**

- The candidate will be required to:
  - orally, or by other methods of communication, answer questions put by the assessor
  - identify colleagues who can be approached for the collection of competency evidence where appropriate
  - present evidence of credit for any off-job training related to 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.
- During assessment the individual will:
  - demonstrate safe working practices at all times
  - communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
  - take responsibility for the quality of personal work
  - plan tasks in all situations and review tasks requirements as appropriate
  - perform all tasks in accordance with standard operation procedures
  - perform all tasks to specifications
  - use accepted engineering techniques, practices, processes and workplace procedures
  - complete tasks within in a reasonable timeframe for typical workplace activities
  - maintain a clean and tidy work area.

### **Critical Aspects of Assessment:**

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

### **Linkages to Other Units:**

- There is a link between this unit and others. Depending on the industry sector and workplace, combined assessment/training may be appropriate.

<b>Key Competencies in this Unit</b>	<b>Level</b>
Collecting, Organising and Analysing Information	1
Communicating Ideas and Information	1
Planning and Organising Activities	1
Working with Others and in Teams	1
Using Mathematical Ideas and Techniques	1
Solving Problems	1
Using Technology	1

**Unit MEM5.13AA**

***Perform Manual Production Welding***

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**Unit Descriptor** This unit deals with the skills and knowledge to carry out manual production welding. This unit is from the Metals and Engineering Industry Competency Standards.

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<b>Element</b>	<b>Performance Criteria</b>
<b>1. Tack and / or weld material using appropriate welding process</b>	<ul style="list-style-type: none"><li>• Material is prepared for the process to be used following standard operating procedures.</li><li>• Material is aligned (if required) using dedicated jigs and fixtures.</li><li>• Tack and/or weld is carried out using appropriate welding processes to accepted workplace standard.</li></ul>

## ***Range of Variables***

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- Tacking and/or manual production welding, including spot welding, is undertaken on one of the range of metallic and non-metallic materials including low carbon steels, with either fuel gas, electric, hot air, ultrasonic welding equipment; pad, butt and fillet welds in the flat position. Guidance is required with respect to equipment settings, choice of consumables, gas mixture and pressures.
- For performance automated / production welding, Unit 7.24A (Operate and monitor machine / process) or Unit 7.25A (Advanced machine / process operations) should be considered. This unit includes the skills to repair and weld band saw blades where existing welding skills are not held.(Please note that these units have not been imported into the Caravan Industry Training Package).

### ***Evidence Guide***

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#### **Underpinning Skills and Knowledge:**

- To demonstrate competence, knowledge of and compliance with Codes of Practice of the Recreational Vehicle Manufacturers Association of Australia (RVMAA).
- Work must comply with occupational health and safety regulations, when assembling and or constructing components.
- To demonstrate competence, evidence of skills and knowledge in the following areas is required:
  - instructions and specifications
  - directions
  - reporting procedures
  - assembly and testing of a typical range of components installed and manufactured by the organisation
  - machines and equipment
  - correct and safe use of tools and equipment
  - personal protective equipment
  - planning and organisation of work
  - maintenance of the work area.

#### **Context of Assessment:**

- This unit should be assessed on the job.
- The competencies covered by this unit could be demonstrated by an individual working alone or as part of a team.
- The assessment environment should not disadvantage the candidate.

#### **Assessment Conditions:**

- The candidate will have access to all tools, equipment, materials and documentation required.
- The candidate will be permitted to refer to the following documents:
  - any relevant workplace procedures
  - any relevant product and manufacturing specifications
  - any relevant codes, standards, manuals and reference materials.

- The candidate will be required to:
  - identify colleagues who can be approached for the collection of competency evidence where appropriate
  - present evidence of credit for any off-job training related to 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.
- During assessment the individual will:
  - demonstrate safe working practices at all times
  - communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
  - take responsibility for the quality of their own work
  - plan tasks in all situations and review tasks requirements as appropriate
  - perform all tasks in accordance with standard operation procedures
  - perform all tasks to specifications
  - use accepted engineering techniques, practices, processes and workplace procedures
  - complete tasks within in a reasonable timeframe for typical workplace activities
  - maintain a clean and tidy work area.

### **Critical Aspects of Assessment:**

- This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with manual production welding or other units requiring the exercise of the skills and knowledge covered by this unit.

### **Linkages to Other Units:**

- There is a link between this unit and other units. Depending on the industry sector and workplace, combined assessment / training may be appropriate.

<b>Key Competencies in this Unit</b>	<b>Level</b>
Collecting, Organising and Analysing Information	1
Communicating Ideas and Information	1
Planning and Organising Activities	1
Working with Others and in Teams	1
Using Mathematical Ideas and Techniques	1
Solving Problems	1
Using Technology	-

**Unit MEM5.12AA**

**Perform Routine Manual Arc and / or Gas Metal Arc Welding**

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**Unit Descriptor** This unit deals with the skills and knowledge to carry out routine manual arc and / or gas metal arc welding. This unit is from the Metals and Engineering Industry Competency Standards.

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<b>Element</b>	<b>Performance Criteria</b>
<b>1 Determine weld requirement</b>	<ul style="list-style-type: none"><li>• Weld requirements are determined in accordance with job specifications.</li><li>• Location and size of welds are determined in accordance with standard operation procedures and job specifications.</li></ul>
<b>2 Prepare materials for welding</b>	<ul style="list-style-type: none"><li>• Materials are cleaned and prepared using appropriate tools and techniques.</li></ul>
<b>3 Select welding machine setting, electrodes and / or wire</b>	<ul style="list-style-type: none"><li>• Welding machine settings are correctly set in accordance with established workplace and / or manufacturer's specifications.</li><li>• Electrodes and/or wire correctly are selected in accordance with established workplace and / or manufacturer's specifications.</li></ul>
<b>4 Perform routine welding</b>	<ul style="list-style-type: none"><li>• Weld is undertaken safely and to prescribed procedures.</li><li>• Weld is cleaned in accordance with standard operating procedures.</li></ul>

## ***Range of Variables***

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- Routine welding in this unit is intended to apply in a manufacturing or maintenance environment where welding is not required to meet Australian Standard 1554 General Purpose or equivalent codes, Occupational Health and Safety regulations and / or licensing requirement.
- Welding would typically be performed on low carbon and mild steels. Weld preparation would be minimal and generally restricted to cleaning, using files and grinders.
- Although this unit is not intended to meet Australian standard 1554 General Purpose or equivalent codes, Occupational Health and Safety regulations and / or licensing requirements, unit 5.15A (Weld using manual metal arc welding process (MMAW) and / or Unit 5.17A (Weld using gas metal arc welding process (GMAW)), should be selected. This unit should not be selected when either Unit 5.15A or Unit 5.17A has already been selected. (Please note that these units have not been imported into the Caravan Industry Training Package).

### ***Evidence Guide***

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#### **Underpinning Skills and Knowledge:**

- To demonstrate competence, knowledge of and compliance with the Codes of Practice of the Recreational Vehicle Manufacturers' Association of Australia (RVMAA) is required.
- Work activities must be carried-out in accordance with OH&S statutory and organisational policy and procedures.
- Evidence of skills and knowledge in the following areas is required:
  - instructions and specifications
  - following directions
  - reporting procedures
  - assembly and testing for a typical range of components installed and manufactured by the organisation
  - machines and equipment
  - correct and safe use of tools and equipment
  - personal protective equipment
  - planning and organisation of work
  - maintenance of the work area.

#### **Context of Assessment:**

- This unit should be assessed on-the-job, off-the-job or a combination of both.
- The competencies covered by this unit could be demonstrated by an individual working alone or as part of a team.
- The assessment environment should not disadvantage the candidate.

#### **Assessment Conditions:**

- The candidate will have access to all tools, equipment, materials and documentation required.
- The candidate will be permitted to refer to the following documents:
  - any relevant workplace procedures
  - any relevant product and manufacturing specifications
  - any relevant codes, standards, manuals and reference materials.

- The candidate will be required to:
  - identify colleagues who can be approached for the collection of competency evidence where appropriate
  - present evidence of credit for any off-job training related to 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.
- During assessment the individual will:
  - demonstrate safe working practices at all times
  - communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
  - take responsibility for the quality of their personal work
  - plan tasks in all situations and review tasks requirements as appropriate
  - perform all tasks in accordance with standard operation procedures
  - perform all tasks to specifications
  - use accepted engineering techniques, practices, processes and workplace procedures
  - complete tasks within in a reasonable timeframe for typical workplace activities
  - maintain a clean and tidy work area.

**Critical Aspects of Assessment:**

- This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the routine manual welding or other units requiring the exercise of the skills and knowledge covered by this unit.

**Linkages to Other Units:**

- There is a link between this unit and other units. Depending on the industry sector and workplace, combined assessment / training may be appropriate.

<b>Key Competencies in this Unit</b>	<b>Level</b>
Collecting, Organising and Analysing Information	1
Communicating Ideas and Information	1
Planning and Organising Activities	1
Working with Others and in Teams	1
Using Mathematical Ideas and Techniques	1
Solving Problems	1
Using Technology	-

***Unit MEM18.1AA***

***Use Hand Tools***

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**Unit Descriptor** This unit deals with the use of hand tools. This unit is directly related to Metals and Engineering Industry Competency Standards.

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**Element**

**1 Use hand tools**

**Performance Criteria**

- Appropriate hand tools are selected according to the task requirements.
- Hand tools are used to produce desired outcomes to job specifications which may include finish, tension, size or shape.
- All safety requirements are adhered to before, during and after use.
- Unsafe or faulty tools are identified and marked for repair according to designated procedures before, during and after use.
- Routine maintenance of tools, including hand sharpening is undertaken according to standard operational procedures, principles and techniques.
- Hand tools are stored safely in appropriate location, according to standard operational procedures and manufacturer's recommendations.

## ***Range of Variables***

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- Work undertaken autonomously or in a team environment using predetermined standards of quality, safety and workshop procedures involving the use of various hand tools, including but not limited to hacksaws, hammers, punches, screwdrivers, sockets, wrenches, scrapers, chisels, gouges, wood planes and files of all cross-sectional shapes and types. Applications may include hand tools used for adjusting, dismantling, assembling and finishing of items or components and the finishing, cutting, scraping of metallic and non-metallic material to size and shape. Routine maintenance tasks may include cleaning, lubricating, tightening, simple tool repairs, hand sharpening and adjustments using engineering principles, tools, equipment and procedures. This unit should not be selected if the hand tool is dedicated to a single operation or machine and if only a machine specific/customized tool is used. For using power tools used for hand held operations see Unit 18.2A (Use power tools / hand held operations).

### ***Evidence Guide***

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#### **Underpinning Skills and Knowledge:**

- To demonstrate competence, knowledge of and compliance with the Codes of Practice of the Recreational Vehicle Manufacturers' Association of Australia (RVMAA) is required.
- Work activities must be carried-out in accordance with OH&S statutory and organisational policy and procedures.
- Evidence of skills and knowledge in the following areas is required:
  - instructions and specifications
  - following directions
  - following reporting procedures
  - assembly and testing for a typical range of components installed and manufactured by the organisation
  - machines and equipment
  - correct and safe use of tools and equipment
  - personal protective equipment
  - work planning and organisation
  - maintenance of a clean and tidy work area.

#### **Context of Assessment:**

- This unit should be assessed on the job, off the job, or a combination of both on and off the job.
- 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.

#### **Assessment Conditions**

- The candidate will have access to all tools, equipment, materials and documentation required.

- The candidate will be permitted to refer to the following documents:
  - any relevant workplace procedures
  - any relevant product and manufacturing specifications
  - any relevant codes, standards, manuals and reference materials.
- The candidate will be required to:
  - orally, or by other methods of communication, answer questions put by the assessor
  - identify colleagues who can be approached for the collection of competency evidence where appropriate
  - present evidence of credit for any off-job training related to this unit
  - satisfy assessors that elements of the unit as specified by the criteria, including required knowledge, have been performed competently and consistently.
- During assessment the individual will:
  - demonstrate safe working practices at all times
  - communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
  - take responsibility for the quality of their own work
  - plan tasks in all situations and review tasks requirements as appropriate
  - perform all tasks in accordance with standard operation procedures
  - perform all tasks to specifications
  - use accepted engineering techniques, practices, processes and workplace procedures
  - complete tasks within in a reasonable timeframe for typical workplace activities
  - maintain a clean and tidy work area.

### **Critical Aspects of Assessment:**

- This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the use of hand tools or other units requiring the exercise of the skills and knowledge covered by this unit.
- Competency in this unit cannot be claimed until all prerequisites have been satisfied.

## **Competency Standards**

### **Linkages to Other Units:**

- There is a link between this unit and a range of other units. Depending on the industry sector and workplace, combined assessment / training may be appropriate.

<b>Key Competencies in this Unit</b>	<b>Level</b>
Collecting, Organising and Analysing Information	1
Communicating Ideas and Information	1
Planning and Organising Activities	1
Working with Others and in Teams	1
Using Mathematical Ideas and Techniques	1
Solving Problems	1
Using Technology	-

## ***Unit MEM18.2AA***

### ***Use Power Tools / Hand Held Operations***

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**Unit Descriptor** This unit deals with the use of power tools / hand held operations. This unit is directly related to Metals and Engineering Industry Competency Standards.

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#### **Element**

**1 Use power tools**

#### **Performance Criteria**

- Appropriate power tools selected according to the task requirements.
- Power tools used following a determined sequence of operations which may include clamping, alignment and adjustment to produce desired outcomes to job specifications which may include finish, size or shape.
- All safety requirements are adhered to before, during and after use.
- Unsafe or faulty tools identified and marked for repair according to designated procedures before, during and after use.
- Operational maintenance of tools, including hand sharpening, undertaken according to standard workplace procedures, principles and techniques.
- Power tools stored safely in appropriate location according to standard workshop procedure and manufacturers recommendations.

### ***Range of Variables***

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- Work undertaken autonomously or in a team environment using predetermined standards of quality, safety and workshop procedures involving the use of various power tools, including but not limited to electric or pneumatic drills, grinders, jigsaws, nibblers, cutting saws, sanders, planers, routers, pedestal drills and pedestal grinders. Applications may extend to loosening and fastening of items or components and the finishing, cutting, grinding of metallic and non-metallic materials and / or tool bits to size and shape. Routine maintenance task may include cleaning, lubricating, tightening, simple tool repairs and adjustments. This unit should not be selected if power tools used are dedicated to an operation or machine, i.e. Nutrunner, air drill driver etc. For using hand tools see Unit 18.1A (Use hand tools).

## ***Evidence Guide***

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### **Underpinning Skills and Knowledge:**

- To demonstrate competence, knowledge of and compliance with the Codes of Practice of the Recreational Vehicle Manufacturers' Association of Australia (RVMAA) is required.
- Work activities must be carried-out in accordance with OH&S statutory and organisational policy and procedures.
- Evidence of skills and knowledge in the following areas is required:
  - instructions and specifications
  - following directions
  - following reporting procedures
  - assembly and testing for a typical range of components installed and manufactured by the organisation
  - machines and equipment
  - correct and safe use of tools and equipment
  - personal protective equipment
  - planning and organisation of work
  - maintenance of a clean and tidy work area.

### **Context of Assessment:**

- This unit should be assessed on the job, off the job, or a combination of both on and off the job.
- 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.

### **Assessment Conditions:**

- The candidate will have access to all tools, equipment, materials and documentation required.

## **Competency Standards**

- The candidate will be permitted to refer to the following documents:
  - any relevant workplace procedures
  - any relevant product and manufacturing specifications
  - any relevant codes, standards, manuals and reference materials.
- The candidate will be required to:
  - orally, or by other methods of communication, answer questions put by the assessor
  - identify colleagues who can be approached for the collection of competency evidence where appropriate
  - present evidence of credit for any off-job training related to 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.
- During assessment the individual will:
  - demonstrate safe working practices at all times
  - communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
  - take responsibility for the quality of their own work
  - plan tasks in all situations and review tasks requirements as appropriate
  - perform all tasks in accordance with standard operation procedures
  - perform all tasks to specifications
  - use accepted engineering techniques, practices, processes and workplace procedures
  - complete tasks within in a reasonable timeframe for typical workplace activities
  - maintain a clean and tidy work area.

### **Critical Aspects of Assessment:**

- This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the use power tools in hand held operations or other units requiring the exercise of the skills and knowledge covered by this unit.
- For a qualification in the metals industry (not the Caravan Industry) competency in this unit cannot be claimed until all prerequisites have been satisfied.

**Linkages to Other Units:**

- There is a link between this unit and others. Depending on the industry sector and workplace, combined assessment / training may be appropriate.

<b>Key Competencies in this Unit</b>	<b>Level</b>
Collecting, Organising and Analysing Information	1
Communicating Ideas and Information	1
Planning and Organising Activities	1
Working with Others and in Teams	1
Using Mathematical Ideas and Techniques	1
Solving Problems	1
Using Technology	-