

<b>Training Package</b>	Metal and Engineering (MEM05)			<b>HSC Requirements and Advice</b>
<b>Title</b>	<b>Use power tools/hand held operations</b>			
<b>Unit code</b>	<b>Competency field</b>	<b>Band</b>	<b>Unit weight</b>	<b>HSC Indicative Hours</b>
<b>MEM18002B</b>	Maintenance & diagnostics	A	2	<b>20</b>

<b>Unit descriptor</b>	This unit covers using a range of hand held power tools and fixed power tools for hand held operations for a variety of general engineering applications.
<b>Prerequisites</b>	None
<b>Application of the competency</b>	This unit applies to loosening and fastening items or components and shaping, finishing, cutting, grinding metallic and non-metallic materials and/or tool bits to size and shape.
<b>Related units</b>	This unit should not be selected if the power tools used are dedicated to an operation or machine, e.g. nut-runner, air drill, power driver etc. For using hand tools, see Unit MEM18001C (Use hand tools).

### 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.

<b>Overview of assessment requirements</b>	<b>Context of assessment</b>	<b>Interdependent assessment</b>	<b>Method of assessment</b>
A person who demonstrates competency in this unit must be able to use power tools/hand held operations.	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 using power tools/hand held operations or other units requiring the exercise of the skills and knowledge covered by this unit.	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 should not require language, literacy and numeracy skills beyond those required in this unit. 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.

<b>Evidence Guide cont/d</b>			<b>HSC Requirements and Advice</b>
<b>Consistency of performance</b>	<b>Required skills</b>	<b>Required knowledge</b>	<b>Key Terms and Concepts</b>
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.	Look for evidence that confirms skills in: <ul style="list-style-type: none"> <li>• reading and following information on standard operating procedures</li> <li>• following verbal instructions</li> <li>• selecting power tools appropriate to the task</li> <li>• using power tools safely</li> <li>• using clamping/securing devices</li> <li>• identifying power tool defects</li> <li>• maintaining power tools using appropriate techniques</li> <li>• sharpening tools/tool bits within the scope of this unit</li> <li>• storing power tools according to manufacturers' / standard operating procedures.</li> </ul>	Look for evidence that confirms knowledge of: <ul style="list-style-type: none"> <li>• application of different power tools</li> <li>• clamping/securing methods</li> <li>• adjustments/alignments to a range of power tools</li> <li>• common faults and/or defects in power tools</li> <li>• procedures for marking unsafe or faulty power tools for repair</li> <li>• routine maintenance requirements of a range of power tools</li> <li>• tool sharpening techniques for a range of power tools</li> <li>• storage location and procedures of a range of power tools</li> <li>• hazards/control measures associated with power tools</li> <li>• use and application of personal protective equipment</li> <li>• safe work practices and procedures.</li> </ul>	<ul style="list-style-type: none"> <li>• alignment, adjustment and clamping</li> <li>• faults and/or defects</li> <li>• hazards</li> <li>• job specification/s</li> <li>• maintenance</li> <li>• manufacturers' specifications</li> <li>• occupational health and safety (OHS)</li> <li>• personal protective equipment (PPE)</li> <li>• power tools</li> <li>• reporting and recording</li> <li>• routine operational maintenance</li> <li>• safe work practices and procedures</li> <li>• safety/lockout tagging</li> <li>• safety requirements</li> <li>• selection and application of power tools</li> <li>• signs of poor performance/efficiency</li> <li>• standard operating procedures (SOP)</li> <li>• storage</li> <li>• task requirements.</li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
1 Use power tools	1.1 <i>Power tools</i> are selected appropriate to the task requirements.	<p>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.</p> <p>The following variables may be present and <i>may include</i>, but are not limited to, the examples listed under the scope. All work is undertaken to relevant legislative requirements, where applicable.</p> <p><b>Power tools</b></p> <ul style="list-style-type: none"> <li>• electric or pneumatic/hydraulic drills, grinders, jigsaws, nibblers, cutting saws, sanders, planers, routers, pedestal drills and pedestal grinders.</li> </ul>	<p><b>Learning experiences for the HSC must address:</b></p> <p>A basic knowledge of a range of power tools including:</p> <ul style="list-style-type: none"> <li>• name</li> <li>• characteristics</li> <li>• use</li> <li>• limitations</li> <li>• hazard controls</li> <li>• maintenance.</li> </ul> <p>Power tools including:</p> <ul style="list-style-type: none"> <li>• electric or pneumatic/hydraulic drill</li> <li>• grinder</li> <li>• jigsaw</li> <li>• nibbler</li> <li>• saw.</li> </ul> <p>Considerations for the selection of power tools including:</p> <ul style="list-style-type: none"> <li>• skills/training</li> <li>• licensing requirements</li> <li>• time</li> <li>• cost</li> <li>• occupational health and safety (OHS) requirements</li> <li>• appropriateness for purpose.</li> </ul>
	1.2 Power tools are used for a determined sequence of operations – which may include <i>clamping</i> , alignment and adjustment to produce desired outcomes – to <i>job specifications</i> which may include finish, size or shape.	<p><b>Clamping</b></p> <ul style="list-style-type: none"> <li>• multigrips, vices, jigs and fixtures, clamps, etc.</li> </ul> <p><b>Job specifications</b></p> <ul style="list-style-type: none"> <li>• finish, size or shape etc.</li> </ul>	<p><b>Learning experiences for the HSC must address:</b></p> <p>A definition of:</p> <ul style="list-style-type: none"> <li>• job specification/s.</li> </ul> <p>Knowledge of the use/application of a range of power tools in a general engineering context to produce desired outcomes, including:</p> <ul style="list-style-type: none"> <li>• loosening and fastening items/components</li> <li>• shaping, finishing, cutting and grinding metallic and non-metallic materials and/or tool bits.</li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			<p>Standard operating procedures (SOP) for a range of power tools including:</p> <ul style="list-style-type: none"> <li>• alignment</li> <li>• adjustment</li> <li>• clamping</li> <li>• start up and shut down.</li> </ul> <p>Understanding of the importance of securing work pieces when using power tools.</p> <p>Identification of a range of clamping/securing devices/ methods and their application.</p>
	<p>1.3 All safety requirements are adhered to before, during and after use.</p>		<p><b>Learning experiences for the HSC must address:</b></p> <p>A basic understanding of (OHS) legislation.</p> <p>An awareness of safe work practices and procedures including:</p> <ul style="list-style-type: none"> <li>• OHS induction training (general, work activity and site-specific)</li> <li>• selection, use and maintenance of personal protective equipment (PPE)</li> <li>• selection of appropriate tools for the task</li> <li>• correct use, maintenance and storage of tools, equipment and machinery</li> <li>• correct handling, application, transport and storage of hazardous and non-hazardous materials</li> <li>• safe posture (sitting, standing, bending and lifting)</li> <li>• correct manual handling (lifting and transferring)</li> <li>• hazard identification and risk control</li> <li>• procedures to follow in the event of an emergency</li> <li>• basic first aid training and access to first aid kits</li> <li>• correct use of fire fighting equipment: <ul style="list-style-type: none"> <li>- fire blanket</li> <li>- fire extinguishers</li> <li>- fire hydrant and hose</li> </ul> </li> <li>• effective communication and teamwork</li> <li>• adherence to work instructions, workplace policies and standard operating procedures</li> <li>• housekeeping/clean-up procedures with due consideration to OHS and the environment.</li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			<p>Use and application of a range of PPE including:</p> <ul style="list-style-type: none"> <li>• footwear</li> <li>• head protection</li> <li>• gloves</li> <li>• protective clothing</li> <li>• respirator</li> <li>• face mask/shield</li> <li>• hearing protection</li> <li>• eye protection.</li> </ul> <p>Importance of correct fitting PPE.</p> <p>Safe work practices for using tools and equipment including:</p> <ul style="list-style-type: none"> <li>• following SOP and manufacturer's specifications before, during and after use</li> <li>• risk management (identifying hazards and implementing control measures)</li> <li>• correct manual handling</li> <li>• safe handling, application and storage of hazardous substances</li> <li>• appropriate use of PPE</li> <li>• regular servicing and maintenance of tools and equipment</li> <li>• selection of appropriate tool for use</li> <li>• working with electricity in a safe manner</li> <li>• adequate ventilation</li> <li>• attaching appropriate safety guards where required.</li> </ul>
	<p>1.4 Unsafe or faulty tools are identified and marked for repair before, during and after use according to designated procedures.</p>		<p><b>Learning experiences for the HSC must address:</b></p> <p>Identification of faulty tools and equipment including:</p> <ul style="list-style-type: none"> <li>• malfunctions</li> <li>• worn, broken or missing components</li> <li>• broken or missing safety guards.</li> </ul> <p>An awareness of the signs of poor performance and inefficiency including:</p> <ul style="list-style-type: none"> <li>• noise</li> <li>• quality of end product</li> <li>• appearance</li> <li>• vibration</li> </ul>
			<ul style="list-style-type: none"> <li>• rough running</li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			<ul style="list-style-type: none"> <li>• failure to start</li> <li>• presence of smoke and odours</li> <li>• consumption of consumables</li> <li>• blockages</li> <li>• amount of maintenance required</li> <li>• time taken to complete the job.</li> </ul> <p>Identification of common faults and/or defects in power tools.</p> <p>Reporting of serious faults including:</p> <ul style="list-style-type: none"> <li>• verbal notification to appropriate personnel</li> <li>• recording on job card/maintenance log</li> <li>• safety/lockout tagging where appropriate.</li> </ul> <p>Personnel to whom problems should be reported:</p> <ul style="list-style-type: none"> <li>• supervisor/manager</li> <li>• supplier/manufacturer.</li> </ul> <p>Procedures for marking and reporting unsafe or faulty tools for repair.</p> <p>Reasons for safety/lockout tagging including:</p> <ul style="list-style-type: none"> <li>• ease of identification</li> <li>• evidence of serviceability</li> <li>• preventing use until repaired.</li> </ul>
	<p>1.5 <i>Operational maintenance</i> of tools, including hand sharpening, is undertaken according to standard workplace procedures, principles and techniques.</p>	<p><b>Operational maintenance</b></p> <ul style="list-style-type: none"> <li>• hand sharpening, cleaning, lubricating, tightening</li> <li>• simple tool repairs and adjustments using engineering principles, tools, equipment and procedures to statutory and regulatory requirements.</li> </ul>	<p><b>Learning experiences for the HSC must address:</b></p> <p>Awareness of routine operational maintenance for a range of power tools including:</p> <ul style="list-style-type: none"> <li>• lubrication</li> <li>• safety checks</li> <li>• cleaning and decontamination</li> <li>• tightening and adjustment</li> <li>• replacement of consumable components</li> <li>• repair/replacement of worn, malfunctioning or damaged components/parts</li> <li>• hand sharpening (tools and tool bits).</li> </ul> <p>The importance of acting within their level of</p>
			<p>authority in terms of:</p> <ul style="list-style-type: none"> <li>• taking initiative</li> <li>• problem-solving</li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			<ul style="list-style-type: none"> <li>• decision-making.</li> </ul> Maintenance records including: <ul style="list-style-type: none"> <li>• manual</li> <li>• electronic.</li> </ul>
	1.6 Power tools are stored safely in appropriate location according to standard workshop procedures and manufacturers' recommendations.		<p><b>Learning experiences for the HSC must address:</b></p> Issues relating to the storage of power tools including: <ul style="list-style-type: none"> <li>• security</li> <li>• climatic affects</li> <li>• OHS considerations</li> <li>• stability</li> <li>• ease of access.</li> </ul> Knowledge of methods by which power tools are stored and accessed.