



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **FPISA W3207B Sharpen band saws**

**Release: 1**

## **FPISAW3207B Sharpen band saws**

### **Modification History**

Not Applicable

### **Unit Descriptor**

#### **Unit descriptor**

This unit describes the outcomes required to assess the condition of the band saw, set up the sharpening machine and sharpen the saw with a grinder

General workplace legislative and regulatory requirements apply to this unit; however there are no specific licensing or certification requirements at the time of publication

This unit replaces FPISAW3207A Sharpen band saws

### **Application of the Unit**

#### **Application of the unit**

The unit involves sharpening band saws in a forest products factory setting

The skills and knowledge required for competent workplace performance are to be used within the scope of the person's job and authority

### **Licensing/Regulatory Information**

Refer to Unit Descriptor

### **Pre-Requisites**

#### **Prerequisite units**

## Employability Skills Information

**Employability skills**      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

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for sharpening	<p>1.1. Applicable <b>Occupational Health and Safety</b> (OHS), <b>environmental</b>, <b>legislative</b> and <b>organisational requirements</b> relevant to sharpening band saws are identified and followed</p> <p>1.2. <b>Work order</b> is reviewed and checked with <b>appropriate personnel</b></p> <p>1.3. Band saw <b>blades</b> to be <b>sharpened</b> are removed from the designated machinery</p> <p>1.4. <b>Equipment</b> is selected appropriate to work requirements and checked for operational effectiveness in line with manufacturer's recommendations</p> <p>1.5. Sharpening process is planned in line with site procedures and environmental requirements</p> <p>1.6. <b>Communication</b> with others is established and maintained in line with OHS requirements</p>
2. Assess condition and set up sharpening equipment	<p>2.1. <b>Cutting performance</b> of blade is assessed for sharpening requirements and blade replacement reviewed in line with site requirements</p> <p>2.2. Condition of <b>teeth</b>, <b>set</b>, <b>tension</b> of blade and prior repairs are assessed for suitability to site requirements</p> <p>2.3. Sharpening machine is selected and grinding wheel changed or <b>dressed</b></p> <p>2.4. Machine settings are adjusted to suit required blade <b>geometry</b> and blade set to manufacturer's recommendations</p> <p>2.5. Selected tooth of blade is aligned with <b>machine feed</b> mechanism</p>
3. Sharpen band saw blade	<p>3.1. <b>Pre start-up checks</b> are carried out on equipment in line with site requirements</p> <p>3.2. <b>Tests</b> are conducted to ensure teeth and machine feed mechanism are aligned</p> <p>3.3. Depth of machine cut and in-feed are established from blade condition</p> <p>3.4. Machine sharpening process is monitored to ensure correct grinding conditions and geometry</p> <p>3.5. Sharpening process is completed with all teeth in sharp condition at correct cutting angle and <b>profile</b></p> <p>3.6. Band saw blades that cannot be sharpened or are damaged in the process are <b>disposed of</b> in line with</p>

**ELEMENT****PERFORMANCE CRITERIA**

- site procedures, manufacturer's recommendations and environmental requirements
- 3.7. Band saw is packaged for protection during return to service
- 3.8. Sharpening and equipment faults are *recorded and reported* to the appropriate personnel

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level required for this unit

#### Required skills

- Technical skills sufficient to use and maintain relevant tools, machinery and equipment; efficiently and safely sharpen band saws
- Communication skills and interpersonal techniques sufficient to interact appropriately with colleagues and others in the workplace
- Literacy skills sufficient to accurately record and report workplace information, and maintain documentation
- Numeracy skills sufficient to estimate, measure and calculate time required to complete a task
- Problem solving skills sufficient to identify problems and equipment faults and demonstrate appropriate response procedures

#### Required knowledge

- Applicable Commonwealth, State or Territory legislation, regulations, standards, codes of practice and established safe practices relevant to the full range of processes for sharpening band saws
- Environmental protection requirements, including the safe disposal of waste material, minimising carbon emissions and the cleaning of plant, tools and equipment
- Organisational and site standards, requirements, policies and procedures for sharpening band saws
- Environmental risks and hazards
- Characteristics of band saw blades
- Sharpening methods and geometry
- Tooth setting and/or methods for tooth alignment
- Established communication channels and protocols
- Problem identification and resolution strategies and common fault finding techniques

**REQUIRED SKILLS AND KNOWLEDGE**

- Types of tools and equipment and procedures for their safe use, operation and maintenance
- Appropriate mathematical procedures for estimating and measuring, including calculating time to complete tasks
- Procedures for recording and reporting workplace information

# 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 provide evidence that they can safely and efficiently sharpen band saws within organisational requirements

### Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competency in this unit must be relevant to, and satisfy, all of the requirements of the elements of this unit and include demonstration of:

- following applicable Commonwealth, State or Territory legislative and regulatory requirements and codes of practice relevant to sharpening band saws
- following organisational policies and procedures relevant to sharpening band saws
- sharpening band saws in line with the work order and within prescribed organisational requirements
- removing and replacing band saw blades from equipment

### Context of and specific resources for assessment

- Competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of required knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to follow relevant regulatory or Australian Standards requirements
- The following resources should be made available:
  - workplace location or simulated workplace
  - materials and equipment relevant to undertaking work applicable to this unit
  - specifications and work instructions

### Method of assessment

- Assessment must satisfy the endorsed Assessment Guidelines of the FPI11 Training Package
- Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with

## EVIDENCE GUIDE

application of required knowledge

- Assessment must be by direct observation of tasks, with questioning on required knowledge and it must also reinforce the integration of employability skills
- Assessment methods must confirm the ability to access and correctly interpret and apply the required knowledge
- Assessment may be applied under project-related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency
- The assessment environment should not disadvantage the candidate
- Assessment practices should take into account any relevant language or cultural issues related to Aboriginality, gender or language backgrounds other than English
- Where the participant has a disability, reasonable adjustment may be applied during assessment
- Language and literacy demands of the assessment task should not be higher than those of the work role

## 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. **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.

**OHS requirements:** are to be in line with applicable Commonwealth, State or Territory legislation and regulations, and organisational safety policies and procedures, and may include:



## RANGE STATEMENT

- personal protective equipment and clothing
- safety equipment
- first aid equipment
- fire fighting equipment
- hazard and risk control
- fatigue management
- elimination of hazardous materials and substances
- safe forest practices including required actions relating to forest fire
- manual handling including shifting, lifting and carrying
- machine isolation and guarding
- legislation
- organisational policies and procedures
- workplace practices

**Environmental requirements**  
may include:

**Legislative requirements:**

are to be in line with applicable Commonwealth, State or Territory legislation, regulations, certification requirements and codes of practice and may include:

- award and enterprise agreements
- industrial relations
- Australian Standards
- confidentiality and privacy
- OHS
- the environment
- equal opportunity
- anti-discrimination
- relevant industry codes of practice
- duty of care

**Organisational requirements**  
may include:

- legal
- organisational and site guidelines
- policies and procedures relating to own role and responsibility
- quality assurance
- procedural manuals
- quality and continuous improvement processes and standards
- OHS, emergency and evacuation procedures
- ethical standards
- recording and reporting requirements

## RANGE STATEMENT

- equipment use and maintenance and storage requirements
  - environmental management requirements (waste minimisation and disposal, recycling and re-use guidelines)
- Work order** is to include:
- instructions for the sharpening of band saw blades in designated equipment

and may include:

- instructions for the environmental monitoring of work and procedures
- environmental care requirements relevant to the work

**Appropriate personnel** may include:

- supervisors
- suppliers
- clients
- colleagues
- managers

**Blades** may include:

- wide band saw blades used for processing timber products
- narrow band saw blades used for cutting both ferrous and non-ferrous materials

**Sharpening** is to include:

- the amount of material removed from the tooth profile
- the ability to produce the required profile
- the speed at which the abrasive wheel can remove material without affecting steel characteristics, and the quality of surface texture left by the abrasive wheel along the entire profile and at the intersection of all cutting edge angles

**Equipment** may include:

- alternative sharpening machines and grinding wheels

and is to include:

- procedures for equipment lock-out such as protecting operators and co-workers from accidental injury by isolating the machine from the power source
- Communication** may include:
- verbal and non-verbal language
  - constructive feedback
  - active listening
  - questioning to clarify and confirm

## RANGE STATEMENT

	understanding
	<ul style="list-style-type: none"><li>• use of positive, confident and cooperative language</li><li>• use of language and concepts appropriate to individual social and cultural differences</li><li>• control of tone of voice</li><li>• body language</li></ul>
<b>Cutting performance</b> is to include:	<ul style="list-style-type: none"><li>• saw performance balanced against achievement of required production time</li><li>• degree of deviation in the range of sawn products</li></ul>
<b>Teeth</b> are to include:	<ul style="list-style-type: none"><li>• sharpness of each tooth</li><li>• damage to teeth</li><li>• pitch</li><li>• number of teeth per metre</li></ul>
<b>Set</b>	<ul style="list-style-type: none"><li>• is the distance cutting edge points extend from the blade surface (or plane) to provide the blade clearance from the material being sawn</li><li>• in wide bandsaw blades is achieved by swaging and shaping, or tipping tooth points</li><li>• in narrow bandsaw blades applies to, for example, alternate spring set and wave set to provide clearance</li></ul>
<b>Tension</b>	is the level of stress or 'stiffness' induced at the cutting and back edges of the blade by compressing the blade along the inner zone
<b>Dressing</b>	involves cleaning or shaving the top surface of the grinding wheel to remove the build up of old sharpening metal and coolant and dull abrasive grains
<b>Geometry</b>	<ul style="list-style-type: none"><li>• is the tooth pitch and the tooth angles that a blade is sharpened at</li><li>• must match the type and characteristics of the material being sawn</li></ul>
<b>Machine feed</b>	<ul style="list-style-type: none"><li>• is the speed at which the abrasive wheel on the sharpening machine or grinder moves in and out of the tooth profiles</li><li>• rates are generally measured in teeth per minute</li></ul>
<b>Pre start-up checks</b>	are conducted to ensure:

## RANGE STATEMENT

- machine has been set-up correctly
- systems are performing accurately
- machine is operating to optimum performance

### Testing

is the process of assessing a tooth after machine settings and grinding has been undertaken to check pitch and angle of the sharpening process

### Profile

- is the shape or outline of the teeth designed to suit the characteristics of the materials being sawn
- changes in line with sawing speeds, saw blade specifications, the material being sawn and direction of the sawing process

### Disposing of may include:

- recycling band saw blades that cannot be sharpened or are damaged in the process
- re-using band saw blades that cannot be sharpened or are damaged in the process

### Records and reports may include:

- the blade type
- size
- inspection
- grading and labelling outcomes
- storage locations
- quality outcomes
- hazards
- incidents
- equipment malfunctions

and may be:

- manual
- using a computer-based system or other appropriate organisational communication system

## Unit Sector(s)

### Unit sector

No sector assigned

## **Co-requisite units**

**Co-requisite units**

## **Competency field**

**Competency field**          Sawmilling and Processing