



**Australian Government**

# **FWPSAW3232 Sharpen band saw blades**

**Release: 1**

# FWPSAW3232 Sharpen band saw blades

## Modification History

| Release   | Comments                                                                              |
|-----------|---------------------------------------------------------------------------------------|
| Release 1 | This version released with FWP Forest and Wood Products Training Package Version 5.0. |

## Application

This unit of competency describes the skills and knowledge required to assess the condition of narrow and wide band saw blades, set up the sharpening machine and sharpen saw blades with a grinder.

The unit applies to individuals who sharpen band saws in a saw technician workshop or sawmill.

All work must be carried out to comply with workplace procedures, according to state/territory health and safety regulations, legislation and standards that apply to the workplace.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Pre-requisite Unit

Nil

## Unit Sector

Sawmilling and Processing (SAW)

## Elements and Performance Criteria

| Elements                                         | Performance Criteria                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                                                                                |
| 1. Prepare for sharpening                        | 1.1 Review work order to determine job requirements and, where required, seek clarification from appropriate personnel<br><br>1.2 Review environmental protection procedures and workplace health and safety requirements, including the use of personal protective equipment, equipment lock-out and safe manual handling techniques |

| Elements                                         | Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                  | <p>1.3 Identify, assess and take actions to mitigate risks and hazards associated with sharpening operations</p> <p>1.4 Identify and implement workplace procedures for minimising waste material and maximising energy efficiency</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2. Assess band saw blade condition               | <p>2.1 Assess condition of blade teeth and cutting performance of blade to determine the need to replace or sharpen</p> <p>2.2 Measure the kerf of the teeth before sharpening to ensure compliance with workplace standards</p> <p>2.3 Assess condition of prior repairs, blade teeth, set and tension</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 3. Set up sharpening machine                     | <p>3.1 Select sharpening machine and perform pre-operational check to determine operational effectiveness of the machine</p> <p>3.2 Change or dress grinding wheel as required</p> <p>3.3 Adjust sharpening machine settings to suit required blade geometry, taking into account material to be sawn, speed and direction of sawing process and cutting angle for sawing</p> <p>3.4 Prepare grinding coolant system according to manufacturer instructions</p>                                                                                                                                                                                                                                                                                                                                                            |
| 4. Sharpen band saw blade                        | <p>4.1 Set saw blade in the sharpening machine to manufacturer recommendations</p> <p>4.2 Align saw blade tooth with the machine feed mechanism</p> <p>4.3 Conduct tests to ensure teeth and machine feed mechanism are aligned</p> <p>4.4 Establish depth of machine cut and in-feed from blade condition</p> <p>4.5 Monitor machine sharpening process to ensure correct grinding conditions and geometry</p> <p>4.6 Finalise process and check the blade for sharpness, correct cutting angle and profile</p> <p>4.7 Identify damaged and exhausted saw blades and dispose of these according to environmental protection practices</p> <p>4.8 Package band saw for protection during return to service</p> <p>4.9 Identify routine processing and equipment faults, and resolve or report to appropriate personnel</p> |

## Foundation Skills

*This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.*

| Skill                      | Description                                                                                                                                                                                                                                                                          |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reading                    | <ul style="list-style-type: none"> <li>Extracts essential information from operational manuals to determine safe operating procedures for sharpening machine</li> </ul>                                                                                                              |
| Writing                    | <ul style="list-style-type: none"> <li>Prepares routine written reports using the required format, language and structure</li> </ul>                                                                                                                                                 |
| Oral communication         | <ul style="list-style-type: none"> <li>Employs active listening and questioning to clarify content of work orders</li> </ul>                                                                                                                                                         |
| Numeracy                   | <ul style="list-style-type: none"> <li>Performs basic mathematical calculations to determine correct machine settings in relation to speed, pitch and angle</li> <li>Performs basic mathematical calculations to measure kerf and blade gauge to calculate side clearance</li> </ul> |
| Navigate the world of work | <ul style="list-style-type: none"> <li>Understands main tasks, responsibilities and boundaries of own role</li> </ul>                                                                                                                                                                |
| Interact with others       | <ul style="list-style-type: none"> <li>Uses modes of communication suitable to purpose to confirm and clarify understanding</li> </ul>                                                                                                                                               |
| Get the work done          | <ul style="list-style-type: none"> <li>Recognises and responds to routine problems</li> </ul>                                                                                                                                                                                        |

## Unit Mapping Information

| Code and title current version        | Code and title previous version | Comments                                                                                                                                               | Equivalence status |
|---------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| FWPSAW3232<br>Sharpen band saw blades | FWPSAW3207<br>Sharpen band saws | Revised and split element 2; clarified performance evidence; minor edits to knowledge evidence; updated unit code and title for clarity and compliance | Equivalent unit    |

## Links

Companion Volumes, including Implementation Guides, are available at VETNet: - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0d96fe23-5747-4c01-9d6f-3509ff8d3d47>

# Assessment Requirements for FWPSAW3232 Sharpen band saw blades

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## Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that, on at least one occasion, the individual has:

- sharpened one or more of the following types of saw blades:
  - narrow band saw blade
  - wide band saw blade
- followed work order and relevant workplace health and safety and environmental protection procedures
- assessed the cutting performance of the blade, taking into account:
  - saw performance balanced against achievement of required production time
  - degree of deviation in the range of sawn products
- assessed the condition of blade teeth for:
  - sharpness of each tooth
  - damage to teeth
  - straightness of teeth
  - kerf width
- set up the sharpening machine.

## Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- basic knowledge of physics of sawing, including:
  - saw blade material and properties
  - impact of timber properties on saw blades
  - direction of cut
  - forces on a blade

- heat removal
- sawtooth configuration
- purpose, features and operation of band saws for which blades are sharpened
- features and names of different parts of band saw blades
- purpose, features and operation of tools and equipment used to sharpen band saw blades:
  - sharpening machines
  - grinding wheels
- importance of sharpening and setting teeth and tension to match requirements for:
  - characteristics of various materials sawn
  - speed of the sawing process
  - direction of the sawing process
  - hook/rake angles for sawing
  - saw blade specifications
- methods for:
  - assessing saw blade condition
  - sharpening blades to specified requirements
  - grinding teeth to a specified profile
  - tensioning blades to specified requirements
  - aligning saw teeth
- tooth pitch and tooth angles at which blades are sharpened (blade geometry)
- range of speeds at which abrasive wheels can be operated without damaging blades
- coolants used in the sharpening process, and impact on efficient sharpening
- types of risk and hazards, and mitigation measures associated with sharpening band saw blades
- workplace policies and procedures specific to sharpening band saw blades:
  - workplace health and safety, with particular emphasis on use of personal protective equipment (PPE) and safe manual handling techniques
  - communication reporting lines
  - recording and reporting of processing and equipment faults
- environmental protection practices for repairing and maintaining tools and equipment in sawmills:
  - reducing water and energy use
  - cleaning plant, tools and equipment
  - disposing of, recycling and reusing materials.

## Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
  - skills must be demonstrated in a saw technician workshop, a sawmill or an environment that accurately represents workplace conditions

- resources, equipment and materials:
  - sharpening machines
  - grinding wheels
  - grinding coolant where applicable
  - band saws for which blades are to be sharpened
  - one or more of the following types of band saw blades to be sharpened: wide band saw blades used for processing timber products, narrow band saw blades used for cutting both ferrous and non-ferrous materials
  - PPE suitable for sharpening band saw blades
- specifications:
  - manufacturer instructions for use, repair and maintenance of equipment
  - work order with specific instructions for sharpening band saw blades
  - template documents for recording equipment faults and maintenance requirements
  - workplace procedures for sharpening band saw blades.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0d96fe23-5747-4c01-9d6f-3509ff8d3d47>