



Australian Government

FPISAW3220C Maintain wide band saw blades

Release 1

FPISAW3220C Maintain wide band saw blades

Modification History

Version	Comments
Version 1.2	Data entry error in numbering of performance criteria in elements 1 and 2 corrected
Version 1.1	Updated in line with skills for sustainability review to reflect organisational environmental requirements

Unit Descriptor

Unit descriptor

This unit describes the outcomes required to level, tension, back-gauge, weld and replace teeth on wide band saw blades

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 FPISAW3220B Maintain wide band saw blades. Equivalent

Application of the Unit

Application of the unit

The unit involves maintaining wide band saw blades 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

Not applicable

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 maintenance	<p>1.1. Applicable <i>Occupational Health and Safety</i> (OHS), <i>environmental, legislative</i> and <i>organisational requirements</i> relevant to maintaining wide band saw blades are identified and followed</p> <p>1.2. <i>Work order</i> is reviewed and checked with <i>appropriate personnel</i></p> <p>1.3. <i>Wide band and gang saws</i> to be <i>maintained</i> are removed from the designated machinery</p> <p>1.4. <i>Equipment</i> is selected appropriate to work requirements and checked for operational effectiveness in line with manufacturer's recommendations</p> <p>1.5. Maintenance process is planned in line with site procedures and environmental requirements</p> <p>1.6. <i>Communication</i> with others is established and maintained in line with OHS requirements</p>
2. Assess saw condition	<p>2.1. Saws are handled safely without damage to teeth</p> <p>2.2. Foreign material built up on blade surfaces is cleaned for inspection</p> <p>2.3. Saw is inspected to assess condition of teeth and saw blade</p> <p>2.4. Teeth and tips requiring repair or replacement are checked and marked</p> <p>2.5. Saw is declared unserviceable where hazardous defects are found and <i>disposed of</i> in line with site procedures, manufacturer's recommendations and environmental requirements</p>
3. Level, tension and back-gauge saw blade	<p>3.1. <i>Ridges or lumps</i> across and along saw are assessed and matched on both sides of the blade</p> <p>3.2. <i>Gauges and straight edges</i> are used in both directions and monitored for accuracy</p> <p>3.3. Ridges or lumps are progressively removed through <i>levelling</i> and the use of <i>stretcher rolls or levelling rolls</i> to achieve flatness</p> <p>3.4. Levelling or rolling <i>patterns</i> are controlled to localise stresses to avoid spring-back and re-occurrence of defects</p> <p>3.5. Saw blade is checked against required <i>curvature</i> using a gauge to identify <i>tensioning</i> requirements</p> <p>3.6. Tension curvature is obtained across and along saw</p>

ELEMENT**PERFORMANCE CRITERIA**

- blade in line with required standard
- 3.7. Alignment of saw back is checked against saw tolerances using a gauge and areas not conforming are rolled to obtain required tolerance
4. Repair teeth and blade cracks
- 4.1. Saw blade is placed in **welding jig** for applying heat and undertaking welding activities
- 4.2. Weld line is marked to check amount of damaged tooth to be removed or crack to be repaired and selected to minimise stresses
- 4.3. Metal is removed to the proposed line, the metal edge is prepared for the **welding** process and cleaned free of burn marks
- 4.4. Worn, broken or ground surface is prepared for metal build up or replacement by applying heat and pressure
- 4.5. Teeth or cracked area is built up or replaced using compatible welding material and welding procedures that ensure specified **metal penetration and density**
- 4.6. Weld **run-off tabs** are used to limit stress and hollows at edges of the saw blade
- 4.7. Teeth or cracks are ground or filed to required shape, **tolerance** and pitch
- 4.8. Saws where teeth, tips or blade cracks are damaged during the repair process and cannot be repaired are disposed of in line with site procedures, manufacturer's recommendations and environmental requirements
- 4.9. Repair process and equipment faults are investigated, **recorded and reported** in line with site requirements

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 maintain wide band and gang saw blades
- 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 maintaining wide band saw blades
- 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 maintaining wide band saw blades
- Environmental risks and hazards
- Characteristics of welding consumables
- Characteristics of saw steel
- Methods that can be applied to level and tension blades
- Teeth repair methods
- Saw condition assessment
- Established communication channels and protocols
- Problem identification and resolution strategies and common fault finding techniques
- 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 maintain wide band saw blades and gang 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 maintaining wide band saw blades
- following organisational policies and procedures relevant to maintaining wide band saw blades
- maintaining wide band and gang saw blades in line with work order and within prescribed organisational requirements
- removing and replacing saws from equipment
- assessing saw conditions in line with standard operating procedures

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

EVIDENCE GUIDE

- Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with 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. 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.

OHS requirements: are to be in line with applicable Commonwealth,

RANGE STATEMENT

State or Territory legislation and regulations, and organisational safety policies and procedures, and may include:

- 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 isolating 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
- legal

Organisational requirements
may include:

- organisational and site guidelines
- policies and procedures relating to own role and responsibility
- quality assurance
- procedural manuals
- quality and continuous improvement processes and standards

RANGE STATEMENT

- OHS, emergency and evacuation procedures
 - ethical standards
 - recording and reporting requirements
 - 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 repair of wide band and gang saws 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
- Wide band and gang saws** are to include:
- large heavy duty saws used widely in the Forestry Industry
- Maintenance** may include:
- the correction of:
- lumps
 - ridges
 - cracks
 - broken or damaged teeth
- Equipment** may include:
- hammers
 - stretcher / tension rolls
 - levelling rolls
 - tension gauges and straight edges to check accuracy of levelling and tensioning
 - welding equipment
- and a range of hand-held tools including:
- punches
 - engineers hammers
 - angle grinders
 - sanders
 - hand files

RANGE STATEMENT

- Communication** may include:

 - abrasive paper/cloth
 - verbal and non-verbal language
 - constructive feedback
 - active listening
 - questioning to clarify and confirm understanding
 - use of positive, confident and cooperative language
 - use of language and concepts appropriate to individual social and cultural differences
 - control of tone of voice
 - body language
- Disposing of** may include:

 - recycling un-serviceable saws/saws where teeth, tips or blade cracks are damaged during the repair process and cannot be repaired
 - re-using un-serviceable saws/saws where teeth, tips or blade cracks are damaged during the repair process and cannot be repaired
- Ridges or lumps** are to include:

 - defects and distortions obtained during saw blade operation
- Gauges and straight edges** are to include:

 - measuring and accuracy instruments used in checking the results of hammering and tensioning
- Levelling** is to include:

 - mechanical gear driven devices used to assist in the process of removing saw defects and distortions such as ridges, lumps, and twists
- Stretcher rolls and levelling rolls** are to include:

 - devices for assisting in the process of removing saw defects such as ridges and lumps
- Patterns** are to include:

 - methods which use hammers or rolls to remove defects evenly and without affecting the opposing side
- Curvature**

 - is the distance or chord height measured when the centre of the blade falls away as a result of an elongating inner zone
 - chord height 'tension drop' is generally measured with a tension gauge having a curvature that suits blade width, thickness, and production conditions
- Tensioning**

 - is the process of using mechanically driven rolls to compress and elongate certain sections of the inner zone of a blade; compression of

RANGE STATEMENT

- the inner zone places the outer edges of the blade in tension
- artificially stiffens the cutting edge and reduces the influence of sawing forces that cause buckling of the cutting edge and lateral instability
- Welding jigs**
- are jigs or benches which hold the saw and/or teeth in place securely to allow welding to occur
 - 'benches' incorporate anvils and clamps to lock the blade into welding position
- Welding** may include:
- processes such as:
 - oxyacetylene (fuel gas) welding
 - gas tungsten arc welding (GTAW/TIG)
 - gas metal arc welding (GMAW/MIG)
- Metal penetration and density** is to include:
- a weld bead which provides full penetration fusing together adjacent metal parts
 - a weld free from any faults that would have the potential to weaken the strength and endurance capability of the weld deposit and weld zone
- Run-on and run-off tabs**
- are used mainly in GMAW and GTAW welding processes to ensure full penetration of the weld bead at the start and finish of the weld
 - are removed after annealing
- Tolerance** may include:
- profile
 - pitch
 - set
 - material thickness to manufacturer's specifications
- Records and reports** may include:
- maintain of wide band and gang saws
 - inspection
 - storage locations
 - quality outcomes
 - hazards
 - incidents
 - equipment malfunctions
- and may be:
- manual
 - using a computer-based system or another appropriate organisational communication system

Unit Sector(s)

Unit sector No sector assigned

Competency field

Competency field Sawmilling and Processing