



Australian Government

AHCARB319 Use arborist climbing techniques

Release: 1

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Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 5.0.

Application

This unit of competency describes the skills and knowledge required to climb trees with ropes, harnesses and specialist equipment using climbing techniques for the purpose of mobility in the canopy of trees to acquire a safe work position.

The unit applies to individuals who work in arboriculture under broad direction and take responsibility for their own work. They use discretion and judgement in the selection, allocation and use of available resources and for solving problems.

The arboriculture industry requires that all climbing work is undertaken according to preferred industry practices (as outlined in the Companion Volume).

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

Pre-requisite Unit

Nil

Unit Sector

Arboriculture (ARB)

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 site and inspect equipment	1.1 Confirm access to site and scope of works according to workplace procedures 1.2 Undertake a site-specific job safety analysis (JSA), record and implement control measures according to workplace safety procedures 1.3 Confirm availability of first aid and rescue personnel, equipment

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	and procedures 1.4 Conduct pre-operational preparations and safety checks, on ropes, harnesses, tools and equipment 1.5 Select, check and use personal protective equipment
2. Prepare to access tree	2.1 Inspect tree to determine efficient safe access route and method through discussion with work team 2.2 Select and prepare climbing equipment according to manufacturer instructions, work health and safety regulations and industry standards 2.3 Configure climbing equipment components to form functional tree climbing system appropriate to the access method selected 2.4 Tie, dress, set and finish climbing knots and hitches according to climbing system requirements 2.5 Sharpen, prepare and fit climbing spurs and gaffs for dismantling work 2.6 Conduct pre-climb checks of configured systems to ensure compatibility, safety and function according to climbing system, industry standards and manufacturer instructions
3. Access and work position within tree	3.1 Select suitable anchor points according to load bearing and access requirements 3.2 Install low-risk anchor points using throw lines 3.3 Inspect and test remotely installed anchor points are secure before use 3.4 Ascend tree and access work positions within tree crown using climbing systems appropriate for work task and tree structure 3.5 Configure and use components within functional climbing systems for ascending trees and work positioning 3.6 Access work positions within tree crown by using climbing techniques for both pruning and dismantling work tasks 3.7 Communicate with work team during operations according to work site and environmental conditions using methods agreed with work team 3.8 Observe and maintain safe clearance from hazards and climbing and rigging equipment 3.9 Maintain awareness and clearances for avoiding electrical power lines according to workplace safety procedures

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
4. Descend from tree	4.1 Descend tree using climbing equipment in a controlled manner 4.2 Remove all climbing equipment safely in a controlled manner according to manufacturer instructions 4.3 Inspect, clean, maintain and store climbing and safety equipment according to manufacturer instructions

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
Writing	Accurately complete organisational documents, including job safety analysis and records

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCARB319 Use arborist climbing techniques	AHCARB307 Undertake advanced tree climbing	Title changed Prerequisite units removed Elements and performance criteria clarified Foundation skills added Assessment requirements updated	Equivalent
AHCARB319 User arborist climbing techniques	AHCARB311 Tie, dress, set and finish arborist knots	Some content is covered in this redesigned unit	Not equivalent

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCARB319 Use arborist climbing techniques

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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 the individual has safely and efficiently climbed a tree of at least 18 metres in height and at least 10 metres in canopy spread using rope climbing equipment, without the aid of climbing spurs. The individual must have:

- reached at least five different designated outer extremities of the tree structure
- selected and performed a suitable, safe and efficient access method consistent with the tree structure and the designated working positions
- selected and used suitable, safe and efficient work positioning methods to reach each target, including the use of multiple lines, redirects and advanced climbing methods
- descended the tree safely and retrieved all climbing equipment.

The timeframe allowed to reach the designated targets must meet industry expectations for the size and shape of the tree being climbed.

There must be evidence the individual has safely and efficiently climbed to a height of 15 metres above the ground using climbing spurs in a tree to be removed. The tree must have at least five metres of clear trunk below the lowest branch. The individual must:

- ascend and descend a trunk by spur climbing the trunk without setting a line at the top
- transition around obstacles safely
- perform a self-arrest
- use branch walking techniques to access designated working positions
- descend the tree safely and retrieve all climbing equipment.

The timeframe allowed to reach the designated targets must meet industry expectations for the size and shape of the tree climbed.

There must also be evidence that the individual has:

- installed a throw line in a tree in a predetermined union representing a target of no larger than 600 mm in diameter and at least 20 metres above the throwing position within a timeframe of 15 minutes

- selected, checked and configured climbing equipment components to form safe and functional climbing systems appropriate for climbing tasks
- identified unsafe equipment, climbing system configuration and climbing techniques.

There must also be evidence that the individual has prepared to conduct climbing work, including:

- undertaken a job safety analysis (JSA) for the specific site and work activities and implemented control measures including:
 - confirmed availability of first aid and rescue personnel, equipment and procedures
 - conducted pre-operational and other safety checks, on ropes, harnesses, tools and equipment
 - selected and used personal protective equipment (PPE) and safety equipment
- performed a pre-climb inspection and identified climbing hazards and controlled risks, including:
 - correctly identified tree species
 - assessed tree for stability and tree defects
 - adjusted climbing plan and implemented control measures
- selected, prepared and fitted climbing equipment.

There must also be evidence that the individual has:

- selected an access system and method that is safe, efficient and suitable for the tree structure and work task
- installed climbing and access ropes to suitable tree anchor points within the tree structure, and used throwlines to install:
 - anchor points near the top of the tree
 - a stationary rope technique (SRT) canopy anchor
 - a SRT basal anchor
 - a moving rope technique (MRT) anchor point including the installation of a cambium saver
- safely ascended and descended tree, transitioned between points of attachment and used work positioning methods, including:
 - used MRT and trunk-walking, foot ascenders or footlocking
 - used SRT
 - installed a second point of attachment when in a working position
 - used multiple lines for climbing and tree operations for both MRT and SRT
 - used natural and artificial redirects
 - used climbing spurs for work positioning
- safely retrieving climbing equipment according to industry standards and manufacturer instructions
- tied, dressed, set and finished the following 19 climbing knots and hitches for rigging and climbing applications according to industry standards:
 - scaffold knot
 - double fisherman's bend/prusik loop

- girth hitch
- prusik hitch (English prusik)
- Blake's hitch
- marlinspike hitch
- clove hitch
- double-overhand stopper knot
- sheet bend
- slippery sheet bend
- bowline knot (with a tie-off or stopper knot)
- running bowline knot
- bowline on a bight
- alpine butterfly
- klemheist
- figure-8 loop
- munter hitch
- Flemish bend
- Zeppelin bend
- tied at least one of the following advanced climbing hitches:
 - Distel hitch
 - Valdôtain tresse (French prusik)
 - Schwabisch hitch
 - Knut
- communicated with work team during operations using agreed communication procedures.

All arborist tree climbing work is required to be performed according to preferred industry practices (as outlined in the Companion Volume).

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:

- preferred industry practices (as outlined in the Companion Volume) for arborist tree climbing work
- assessing and selecting methods for climbing trees and methods of tree access, including:
 - selecting a climb plan or work strategy to achieve a scope of works
 - selecting climbing systems that are safe, simple, efficient and ergonomic
 - identifying tree hazards and selecting low-risk work methods
- assessing work health, safety, site, environmental and traffic control measures, including:
 - completing JSAs for site-specific risks
 - purpose of first aid and rescue personnel, equipment and procedures
 - pre-operational and safety checks, on ropes, harnesses, tools and equipment

- PPE used when climbing
- arborist climbing equipment, use and maintenance, including:
 - ropes and their materials, construction and characteristics
 - uses of climbing ropes and lanyards
 - types of climbing ropes
 - harnesses
 - triple locking carabiners and other connectors
 - climbing hardware, including ascenders, descenders, mechanical friction devices, false crotches and artificial redirects
 - climbing spurs and gaffs, their preparation and use for climbing trees
 - maintaining separation between spurs, rigging equipment and ropes
- purpose, function, selection, tying, dressing, setting and finishing of arborist knots used for climbing techniques
- safety when climbing trees, including:
 - safe working limits, ropes and equipment
 - defects in ropes, tools and equipment
 - controlled descent operations
 - controlled removal of access equipment
 - forces applied to anchor points during access and work positioning using MRT and SRT
 - forces applied at primary anchor points and at redirects
- hazards to avoid when climbing within the tree canopy, including:
 - power line safe approach distances and vegetation clearances
 - tree structural defects
 - animals or insects
 - hangers or suspended loads
 - deciding on low-risk access routes
- limits, advantages and disadvantages of friction hitches, including:
 - Blake's hitch
 - Prusik hitch (English prusik)
 - klemheist
 - specialised variations, including Distel hitch, Valdôtain tresse (French prusik), Schwabisch hitch, Knut
- selecting appropriate knots suited for rigging or climbing applications and equipment, including:
 - loss of rope strength
 - appropriate knot for application
 - requirements for secondary knots and stopper knots
- arborist knots, including:
 - knot type and tying procedure
 - dressing

- setting
- finishing
- communications strategies used in arboriculture, including:
 - voice
 - hand
 - whistle signals
 - electronic communications
- assessing tree access routes, techniques and equipment and evaluating risk, including:
 - moving rope technique (MRT) and stationary rope technique (SRT)
 - use of climbing spikes of various lengths
 - transitions between points of attachment
 - natural and artificial redirects
 - use of multiple lines to access trees and tree parts
 - low-risk anchor points
- inspecting, cleaning, maintaining and storing climbing equipment.

Assessment Conditions

Assessment of the skills in this unit of competency must take place under the following conditions:

- physical conditions:
 - trees as stipulated in performance evidence
- resources, equipment and materials:
 - full arborists climbing kit
 - climbing spikes
 - communications equipment agreed by work crew
 - PPE
 - first aid and emergency response equipment
- specifications:
 - workplace and manufacturer instructions for safe operation, cleaning and storage of the equipment specified in the assessment conditions
 - preferred industry practices (as outlined in the Companion Volume) for arborist tree climbing work
- relationships:
 - work team.

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

- arboriculture vocational competencies at least to the level being assessed
- current arboriculture industry skills directly relevant to the unit of competency being assessed.

Links

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