



Australian Government

SISOABS005 Establish ropes for single pitch abseiling on artificial surfaces

Release: 1

SISOABS005 Establish ropes for single pitch abseiling on artificial surfaces

Modification History

Not applicable.

Application

This unit describes the performance outcomes, skills and knowledge required to select and set up belay systems and ropes suitable for single pitch recreational abseils on artificial surfaces. It requires the ability to select the abseil route and to select and utilise fixed anchors. Artificial surfaces can be fixed or portable structures and rigging can be for indoor or outdoor environments.

It applies to rigging staff and activity leaders who work independently or with limited guidance from others.

This unit applies to any type of organisation that delivers recreation activities including commercial, not-for-profit and government organisations.

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

Pre-requisite Unit

Nil

Competency Field

Abseiling

Unit Sector

Outdoor Recreation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes

1. Select route and equipment suitable for the abseil.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1. Identify safe access to and egress from the pitch.
- 1.2. Determine descent and ascent route appropriate for conditions.
- 1.3. Select an abseiling and belay system suitable for the

- abseil, conditions and participant.
- 1.4. Choose a belay device suitable for the artificial surface conditions and belayer.
 - 1.5. Select other equipment to suit abseil requirements and participants.
 - 1.6. Complete safety and serviceability checks on equipment and tag faulty equipment according to organisational procedures.
2. Set up belay system for artificial surface abseils.
 - 2.1. Select anchors and assess condition, including performance under likely load.
 - 2.2. Set up belay systems using existing fixed anchors.
 - 2.3. Select and tie appropriate knots, and rig ropes suitable for load and function within the belay system.
 - 2.4. Establish a belay from which belayer is independent of the system
 - 2.5. Establish a belay that maintains safety of belayer and abseiler.
 - 2.6. Position top rope or bottom brake belay away from hazards, or remove as able.
 - 2.7. Determine need for, and establish, back up belay systems.
 - 2.8. Complete safety checks according to organisational procedures.
 3. Rig rope pitches for artificial surface abseils.
 - 3.1. Rig ropes to minimise effects of rope stretch and rub points and to allow efficient ascent and descent.
 - 3.2. Set up anchors and ropes to allow for a rescue.
 - 3.3. Select and tie knots suitable for system type established.
 - 3.4. Minimise risk of cross loading and mis-alignment of carabiners.
 - 3.5. Verify manufacturers' recommendations, equipment limitations and safety margins, and rig equipment accordingly.
 - 3.6. Complete safety checks according to organisational procedures.

Foundation Skills

Foundation skills essential to performance in this unit, but not explicit in the performance criteria are listed here, along with a brief context statement.

SKILLS

DESCRIPTION

- | | |
|------------------------------------|--|
| Reading skills to: | <ul style="list-style-type: none">• interpret detailed familiar organisational procedures for completing safety checks. |
| Writing skills to: | <ul style="list-style-type: none">• use fundamental sentence structure to complete safety and serviceability forms and fault tags that require factual information. |
| Numeracy skills to: | <ul style="list-style-type: none">• calculate loads for anchors and ropes under normal conditions and in the event of a fall• visually estimate distances to calculate lengths for ropes. |
| Planning and organising skills to: | <ul style="list-style-type: none">• follow a logical equipment selection, rigging and checking process. |

Unit Mapping Information

No equivalent unit.

Links

Companion Volume Implementation Guides -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1ca50016-24d2-4161-a044-d3faa200268b>

Assessment Requirements for SISOABS005 Establish ropes for single pitch abseiling on artificial surfaces

Modification History

Not applicable.

Performance Evidence

Evidence of the ability to complete tasks outlined in elements and performance criteria of this unit in the context of the job role, and:

- select and set up belay systems and ropes suitable for single pitch abseils on artificial surfaces for three different pitches
- collectively set up the following types of systems:
 - single rope
 - releasable abseil line
 - top rope top belay
 - bottom brake belay
 - self-belay
- collectively select and use at least three different types of anchors
- collectively select and tie at least four different types of knots suitable for the system type established, and appropriate for the intended load and function
- identify and tag three different types of faulty equipment.

Knowledge Evidence

Demonstrated knowledge required to complete the tasks outlined in elements and performance criteria of this unit:

- organisational procedures for safety and serviceability checks
- how the following factors affect selection of descent and ascent routes for artificial surfaces:
 - season of operation, weather and environmental conditions for outdoor abseils
 - participant characteristics including age, size, weight, fitness and abseiling skill level
 - group objectives and size
- hazards specific to abseiling on artificial surfaces and how these affect:
 - safe access to and egress from the pitch
 - choice of descent and ascent routes for safety of abseiler
 - positioning of top or bottom belay systems for safety of belayer
- features, functions, advantages and disadvantages of different types of anchors applicable to fixed or portable artificial abseiling structures:
 - bolts
 - chains

- bollards
- eyelets
- U bolts
- beams
- poles
- wire cables
- single point anchors, multi-point anchors, angles and limiting knots
- issues that are assessed when selecting anchors and likely impacts of poor condition on performance under load:
 - wear and abrasion due to age and use
 - corrosion
 - decay
 - dislodgment
- meaning of the following terms, and principles which apply when rigging anchors and ropes:
 - equalisation of load
 - single point of failure
 - anchor redundancy
 - angle of separation
 - shock loading
 - cross loading and cyclical loading of carabiners
 - mis-alignment of carabiners
- types of forces (upwards, downwards) generated during abseiling and belaying, and how to calculate load on anchors and ropes for these circumstances:
 - top rope top belay
 - bottom brake belay
 - self-belay
 - abseiler descending under control
 - abseiler fall
 - belayer arresting falls
- the effects of rope stretch during operations and implications if not minimised:
 - abrasions
 - rope bounce
 - undue stress on the anchor system
 - potential for abseiler to impact with hazards, or become entangled
- features, functions, advantages and disadvantages of the following abseiling and belay equipment used on artificial surfaces:
 - abseiling and belay systems for:
 - single rope
 - releasable abseil line

- top rope top belay
- bottom brake belay
- self-belay
- descending devices:
 - assisted locking
 - inline
 - plate
 - figure 8
 - tubular
 - improvised
- belay devices:
 - assisted locking
 - inline
 - plate
 - figure 8
 - tubular
 - improvised
- carabiners
- harnesses of different types
- static and dynamic rope and when each might be used
- rope protectors
- tape
- sewn sling
- Prusik cord
- how the following factors affect the selection and rigging of above equipment:
 - site characteristics including position of rub points
 - weather and environmental conditions for outdoor abseils on artificial surfaces
 - participant size, weight, and abseiling ability
 - cumulative load for group size and number of abseils
 - abseiling techniques to be used
 - distance, height and angle of anchor relative to top edge of abseil
- manufacturers' specifications for equipment use
- techniques used to establish belay systems for safety of belayer:
 - rigging belays for performance of rescues
 - attaching to anchor or self belay safety system
- situations requiring back up belay systems
- when different knots are used, advantages and disadvantages, and how to tie them:
 - fixed eye
 - mid line tied in the bight
 - end to end joining

- termination
- load control hitches
- slide and grip hitches
- types of safety checks completed for rigging of equipment
- how to care for abseiling equipment when rigging to avoid damage, and promote long lifespan.

Assessment Conditions

Skills may be demonstrated in an indoor or outdoor environment where rigging is completed for recreational single pitch abseils on artificial surfaces. These can include fixed or portable structures.

The following resources must be available to replicate industry conditions of operation:

- first aid equipment
- communication equipment for emergency response
- rescue equipment.

Assessment must ensure use of:

- personal protective equipment to include:
 - abseiling or climbing helmets
 - harnesses
 - gloves, as required
- established anchors for the artificial structure
- abseiling equipment to include:
 - carabiners
 - rope which can include static and or dynamic rope
 - rope protectors
 - tape or sewn sling
 - Prusik cords
 - descending devices
 - belay devices
- template safety checklists
- organisational procedures for safety and serviceability checks.

Assessors must satisfy the Standards for Registered Training Organisations requirements for assessors, and:

- have a collective period of at least three years' experience as an abseiling activity leader or rigger, where they have applied the skills and knowledge covered in this unit of competency; the three years' experience can be part time or full time experience.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1ca50016-24d2-4161-a044-d3faa200268b>