



Australian Government

AVIY4059 Pilot a helicopter during rappelling operations

Release: 1

AVIY4059 Pilot a helicopter during rappelling operations

Modification History

Release 1. This is the first release of this unit of competency in the AVI Aviation Training Package.

Application

This unit involves the skills and knowledge required to pilot a helicopter during rappelling operations, in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority and national operating standards.

It includes planning rappelling operations, conducting pre-flight briefings, and operating a helicopter. It also includes managing abnormal and emergency situations, and conducting post-flight briefings.

This unit addresses aviation technical skill requirements (physical, mental and task-management abilities) related to aircraft operational duties of flight crew, and contributes to safe and effective performance in complex aviation operational environments.

Operations are conducted as part of recreational, commercial and military aircraft activities across a variety of operational contexts within the Australian aviation industry.

Work is performed independently or under limited supervision within a single-pilot or multi-crew environment.

Licensing, legislative, regulatory or certification requirements are applicable to this unit.

Use for Defence Aviation is to be in accordance with relevant Defence Orders, Instructions, Publications and Regulations.

Pre-requisite Unit

Not applicable.

Competency Field

Y – Aircraft Operation and Traffic Management

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Plan rappelling operations

- 1.1 Tasking requirements are identified, including operational variations
- 1.2 Crew and equipment required to ensure safe achievement of task are determined
- 1.3 Helicopter performance data is interpreted and calculated to ensure suitability of aircraft for rappelling operations
- 1.4 Transit, rappelling operation communications and recovery is planned in accordance with workplace procedures
- 1.5 Operations at rappelling site including obstructions, terrain and any factors that may adversely affect deployment, are planned
- 1.6 Abnormal and emergency rappelling situation contingency procedures are planned

2 Conduct pre-flight briefings

- 2.1 Rappelling operational requirements are briefed and confirmed
- 2.2 Location, terrain features (sea state as applicable) and forecast weather conditions are obtained and confirmed
- 2.3 Timings, route/s, airspeeds and altitudes are confirmed
- 2.4 Relevant personnel are briefed about pilot, crew and rappelling personnel responsibilities and communication procedures
- 2.5 Abnormal and emergency rappelling situation contingency procedures are briefed

3 Operate helicopter

- 3.1 Adequacy of hover power margin and control limits to perform rappelling operations is checked and maintained
- 3.2 Site inspection, approach and hover heading are determined in accordance with operational requirements
- 3.3 Descent and approach are controlled to terminate over rappelling site

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| | 3.4 | Control is applied to helicopter to maintain position over rappelling site |
| | 3.5 | Obstacle clearances to obstructions, constructions and terrain are maintained during deployment and/or retrieval operation |
| | 3.6 | Effective communications with crew and relevant personnel are maintained during operation |
| | 3.7 | Safety and security of passengers and/or cargo is managed |
| | 3.8 | Rappelling ropes are recovered and/or detached, and site is vacated in accordance with workplace procedures |
| 4 | Manage abnormal and emergency situations | |
| | 4.1 | Helicopter control is maintained |
| | 4.2 | Abnormal and/or emergency situations are identified and managed |
| | 4.3 | Rappelling equipment/personnel are safely jettisoned (as required) when flight safety or hover stability is compromised |
| 5 | Conduct post-flight briefings | |
| | 5.1 | Operating procedures and flight outcomes are reviewed and analysed |
| | 5.2 | Effectiveness, efficiency and performance of equipment is analysed and reported |
| | 5.3 | Inspection, servicing and stowage of rappelling equipment is organised/confirmed |

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

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| Airborne rappelling operations includes one or more of the following | <ul style="list-style-type: none"> • single or multiple rappellers • basic airborne rappelling • advanced airborne rappelling |
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variations:

- airborne fast roping

Unit Mapping Information

This unit replaces and is equivalent to AVIY4059A Pilot a helicopter during roping operations.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=4725260a-0af3-4daf-912b-ef1c2f3e5816>

Assessment Requirements for AVIY4059 Pilot a helicopter during rappelling operations

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- adapting to differences in equipment and operating environment in accordance with standard operating procedures
- applying precautions and required action to minimise, control or eliminate identified hazards
- applying relevant helicopter aeronautical knowledge
- applying reporting procedures for identified problems
- communicating effectively with others
- completing relevant documentation
- conducting pre-flight and post-flight rappelling operations briefings and debriefings including all sub-tasks:
 - fast rappelling considerations
 - rappelling considerations
 - unprepared helicopter landing sites
 - confined areas
 - unknown landing sites
 - pinnacles
 - embarked/sea platforms (as required)
 - marine environments (as required)
- following relevant legislation and workplace procedures
- identifying and assessing vertical, horizontal and relative spatial distances in relation to aircraft fuselage, rotor system, mission and/or operational stores and equipment with regard to potential obstacles to flight safety
- identifying and correctly using relevant equipment
- identifying and justifying a decision to operate a helicopter during rappelling operations
- implementing contingency plans
- implementing work health and safety (WHS)/occupational health and safety (OHS) procedures and relevant regulations
- interpreting hover performance and power available/power required from graphs/charts
- maintaining situational awareness
- managing abnormal and emergency situations during rappelling operations:

- aircraft system failure or malfunction
- rappelling and rappelling equipment malfunction or failure
- injury to rappelling/rappelling personnel
- degraded environmental conditions
- modifying activities depending on workplace contingencies, situations and environments
- monitoring and anticipating operational problems and hazards and take appropriate action
- monitoring work activities in terms of planned schedule
- operating electronic communications equipment to required protocol
- reacting appropriately to avoid hazardous situations and/or dangerous situations that pose risks to safety of flight and personnel
- reading, interpreting and following relevant regulations, instructions, procedures, information and signs
- selecting and using required personal protective equipment conforming to industry and WHS/OHS standards
- solving problems associated with operating a helicopter during rappelling operations
- using instruments to monitor helicopter performance during rappelling operations
- working collaboratively with others
- working systematically with required attention to detail without injury to self or others, or damage to goods or equipment.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- aircraft performance calculations (for all phases of flight)
- CASR Part 61 Manual of Standards Schedule 3 Aeronautical Knowledge relevant to helicopter roping or rappelling operations
- communications procedure and terminology applicable to rappelling operations
- control effectiveness in all phases of flight
- engine performance checks for helicopter type to be flown
- flight rules and legislation applicable to rappelling operations
- functions and effects of all aircraft controls and instruments
- hazards, limitations and problems that can occur when operating an aircraft during rappelling operations
- helicopter dimensions
- human factors applicable to roping/rappelling operations:
 - crew coordination
 - dehydration and effects on pilot cognitive function
 - fatigue and situational awareness

- stress and short-term, long-term impact
- drugs including over-the-counter
- spatial orientation and illusions
- in a Defence context, relevant Defence Orders and Instructions
- internal and external load limitations for helicopter type to be flown including weight and balance consideration
- meteorological requirements for roping/rappelling operations
- operational inspections
- operational planning and risk management processes for rappelling operations
- pre- and post-flight inspection requirements
- principles of aerodynamics
- relevant sections of Civil Aviation Safety Regulations and Civil Aviation Orders
- relevant WHS/OHS and environmental procedures and regulations
- rappelling and/or fast roping operational planning requirements:
 - fast roping considerations
 - rappelling considerations
 - unprepared helicopter landing sites
 - confined areas
 - unknown landing sites
 - pinnacles
 - embarked/sea platforms
 - marine environments
- rappelling and/or fast rope attaching point limitations
- rappelling and/or fast roping operational flight techniques:
 - low-level flight handling
 - deployment and recovery procedures
 - abnormal and emergency handling techniques.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

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Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Assessment must occur in workplace operational situations. Where this is not appropriate,

assessment must occur in simulated workplace operational situations that reflect workplace conditions.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- acceptable means of simulation assessment
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals
- relevant materials, tools, equipment and personal protective equipment currently used in industry.

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