



Australian Government

AVIY0087 Operate helicopter at low level

Release: 1

AVIY0087 Operate helicopter at low level

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 operate a helicopter at low level in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) Manual of Standards - LL-H Helicopter low-level operations and national operating standards.

It includes planning low-level operations, manoeuvring a helicopter at low level and performing quick stop manoeuvres. It also includes executing reversal turns, executing a forced landing from below 200 feet (ft) above ground level (AGL), and operating at low level in hilly terrain.

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 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.

If the Manual of Standards is amended after the publication of this unit of competency, the delivery of the unit must be in accordance with the latest Manual of Standards as published by CASA.

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

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.

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| 1 Plan low-level operations | 1.1 Risks at low level are identified, evaluated and managed |
| | 1.2 Consultation with all stake holders involved in the low-level operation to confirm task requirements is completed |
| | 1.3 Aircraft type and performance appropriate for the task is ensured |
| | 1.4 Effects of fatigue and physical health on pilot performance is assessed and allowed for |
| | 1.5 Actual and forecast weather conditions to low-level operations is analysed and applied |
| | 1.6 Area of operations using chart and geographical features is identified |
| | 1.7 Geographical characteristics of the area of flying operations to ensure safe completion of the task is assessed |
| | 1.8 All obstructions are identified and avoided |
| | 1.9 Buildings, personnel, vehicles, animals, vegetation and nuisance areas are identified and avoided |
| 2 Conduct flight component | 2.1 Pre-flight inspection is correctly performed and aircraft serviceability for intended flight is determined |
| | 2.2 Data validity of area navigation system (if fitted) is initialised and checked |
| | 2.3 Aircraft is correctly operated |
| | 2.4 Take-off is correctly performed |

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| 3 Conduct aircraft handling at an altitude below 500 ft AGL | 3.1 Pre-manoeuvre checks for each manoeuvre is conducted |
| | 3.2 Level flight, climbing and descending steep turns are demonstrated, |
| | 3.3 Approach is recognised and recovery to retreating blade stall in level flight and turning is demonstrated |
| | 3.4 Correct techniques for upset recovery in various configurations is applied, including configuring aircraft appropriately, recognising upset condition, maintaining references by visual cues and recovering to level flight condition |
| | 3.5 Energy state of the aircraft is managed |
| 4 Conduct low-level handling at an altitude of 200 ft AGL but not below 5 ft AGL | 4.1 Aircraft energy state is managed |
| | 4.2 Straight flight is performed, including adjusting height according to terrain to maintain assigned height AGL, recognising and managing the effect of rising and descending terrain on aircraft performance and compensating for drift |
| | 4.3 Turning at various bank angles at normal cruise speed is performed |
| | 4.4 Use of escape routes and rising ground is demonstrated |
| | 4.5 Flight at various speed and configurations not below safe single-engine speed +15 knots-indicated air speed (KIAS) for multi-engine aircraft is demonstrated |
| | 4.6 Operation adjacent to powerlines and wires is conducted |

- 4.7** Awareness of wind effect in the vicinity of obstructions, mountainous terrain and illusions are demonstrated
- 4.8** Illusion of slipping and skidding during turns close to the ground is recognised and controlled
- 4.9** Effect of rising and descending terrain on aircraft performance is recognised
- 4.10** Constant altitude over featureless terrain or water is maintained
- 4.11** Procedure turns from a fixed ground reference point is conducted
- 4.12** Effects of false horizons is demonstrated
- 4.13** Impact of sun glare on increased risk of collision with obstacles is recognised and managed
- 4.14** Escape routes and rising ground are identified
- 4.15** Requirement to operate in the vicinity of powerlines is identified and wires and risks assessed
- 4.16** Powerlines (wires) are identified and avoided by a minimum of 15 ft when crossing overhead
- 4.17** All powerlines and wires are identified and avoided
- 4.18** Poles, cross trees, wires and insulators to assist powerline and wire location are identified
- 4.19** Pole stay wires are identified and avoided

- 4.20** Quick stop manoeuvres are performed into wind and downwind entry
 - 4.21** Flight at various speed and configurations is performed
- 5 Execute autorotative forced landing (simulated) from below 500 ft AGL (single-engine helicopter only)**
 - 5.1** Potential forced-landing areas prior to and during low-level operations are identified
 - 5.2** Engine failure or any other emergency requiring a forced landing are recognised and recall actions are conducted
 - 5.3** Control of the aircraft is maintained, and the most appropriate landing area is selected within gliding distance while avoiding any powerlines or obstructions
 - 5.4** Aircraft is manoeuvred to a landing area that achieves the safest outcome
 - 5.5** Plan of action and the landing techniques that would ensure the safest outcome when committed to a forced landing on unfavourable terrain or water is explained
- 6 Execute engine failure (simulated) from below 500 ft AGL (multi-engine helicopter only)**
 - 6.1** Potential escape routes prior to and during low-level operations are identified
 - 6.2** Engine failure or any other emergency and conduct recall actions are recognised
 - 6.3** Aircraft is controlled and climb to safe altitude is initiated and maintained
 - 6.4** Aircraft is manoeuvred via escape route to a safe altitude

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| | 6.5 | Check system items are completed |
| | 6.6 | Plan of action is explained |
| 7 Operate at low level in hilly terrain | 7.1 | Aircraft is safely manipulated at low level in hilly terrain |
| | 7.2 | Safe height relevant to application type is established and maintained |
| | 7.3 | Safe contour flying is demonstrated |
| | 7.4 | Natural markers to aid situational awareness are identified and selected |
| | 7.5 | Safe approaches to higher ground, including identification of escape routes, are demonstrated |
| | 7.6 | Safe turns in hilly terrain are demonstrated |
| | 7.7 | Awareness and management of the effects of wind and turbulence in hilly terrain, including lee effects, are demonstrated |

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.

Non-essential conditions may be found in the AVI Aviation Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is not equivalent to AVIY0049 Operate helicopter at low level.

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 AVIY0087 Operate helicopter at low level

Modification History

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

Performance Evidence

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

- adapting to differences in equipment and operating environment in accordance with standard operating procedures (SOPs)
- applying awareness of wind effect in the vicinity of obstructions, mountainous terrain and illusions
- applying correct navigation techniques and procedures at low level
- applying knowledge of the effect of false horizons
- applying precautions and required actions to minimise, control or eliminate identified hazards
- applying relevant helicopter aeronautical knowledge
- applying relevant legislation and workplace procedures
- communicating effectively with others
- completing relevant documentation
- complying with airspace requirements and procedures
- conducting procedure turns from a fixed ground reference point
- flying at various speed and configurations not below safe single-engine speed (+15 knots-indicated air speed (KIAS) for multi-engine aircraft)
- identifying and avoiding power lines and wires by a minimum of 15 feet (ft) when crossing overhead
- identifying and correctly using relevant equipment
- identifying and justifying a decision to operate a helicopter at low level
- identifying escape routes and rising ground
- identifying poles, cross trees, wires and insulators to assist power line and wire location
- identifying the requirement to operate in the vicinity of power lines and wires and assessing associated risk
- implementing contingency plans
- implementing work health and safety (WHS)/occupational health and safety (OHS) procedures and relevant regulations
- interpreting and following operational instructions and prioritising work
- maintaining a constant altitude over featureless terrain or water
- managing the aircraft energy state, including:
 - identifying high kinetic energy situations

- identifying low kinetic energy situations
- identifying high potential energy situations
- identifying low potential energy situations
- modifying activities depending on workplace contingencies, situations and environments
- monitoring and anticipating operational problems and hazards and taking appropriate action
- monitoring work activities in terms of planned schedule
- navigating to a predetermined destination at altitude below 500 ft above ground level (AGL)
- operating adjacent to power lines and wires
- operating electronic communications equipment to required protocol
- performing flight at various speed and configurations
- performing low-level circuit and landing
- performing quick stop manoeuvres into wind entry and downwind entry, including:
 - identifying termination point
 - decelerating helicopter
 - balancing helicopter and maintaining direction and altitude
 - maintaining helicopter outside height velocity diagram requirements
 - hovering over the termination point
 - performing quick stop manoeuvres downwind entry
 - identifying termination point
 - turning 180° by controlled corrective action (downwind entry)
 - turning helicopter into wind and initiate initiating deceleration
 - balancing helicopter and maintaining direction and altitude
- performing straight flight
- performing turns at various bank angles at normal cruise speed
- reading, interpreting and following relevant regulations, instructions, procedures, information and signs
- recognising and controlling the illusion of slipping and skidding during turns close to the ground
- recognising and managing the impact of sun glare on increased risk of collision with obstacles
- recognising the effect of rising and descending terrain on aircraft performance
- reporting and/or rectifying identified problems promptly in accordance with regulatory requirements and workplace procedures
- selecting and using required personal protective equipment (PPE) conforming to industry and WHS standards
- setting local or area barometric pressure adjusted for sea level (QNH) at appropriate stages of flight
- using instruments to monitor helicopter performance when operating a helicopter at low level
- 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 and performance criteria and include knowledge of:

- air traffic requirements
- application of the height/velocity diagram/graph
- Civil Aviation Safety Regulation (CASR) Part 61 Manual of Standards Schedule 3 Aeronautical Knowledge relevant to low-level helicopter operations
- critical operational conditions, including retreating blade stall, vortex ring, overpitching, loss of anti-torque effectiveness and negative g effects
- effect of aircraft inertia at low level
- effect of wind velocity on low-level operations
- effects of illusions
- flight rules and legislation related to low-level ratings
- functions and effects of all helicopter controls, including revolutions per minute (RPM)/rotor revolutions per minute (RRPM) management (governors) and engine acceleration response
- human factors during low-level operations, including:
 - dehydration
 - fatigue
 - stress and short/long-term impacts
 - drugs impact
 - spatial disorientation and illusions
- local air traffic control (ATC) procedures and instructions
- low-level operational techniques
- maximum rate and minimum rate turn criteria
- meteorological factors affecting helicopter flight performance during low-level flight
- obstruction avoidance techniques
- operational inspections
- operations on, or in vicinity of, non-controlled and controlled aerodromes or airstrips, including aerial inspections
- planning and aviation risk management processes
- pre-flight and after-flight inspections
- problems that may occur when operating a helicopter at low level and appropriate action that should be taken in each case
- procedures for using performance charts
- purpose and functions of helicopter systems
- relevant sections of CASRs and Civil Aviation Orders
- relevant WHS and environmental procedures and regulations
- safety hazards and risks of low-level helicopter operations and precautions for controlling risks
- terrain following techniques
- use of escape routes and rising ground
- weather effects on low-level operations.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

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.

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 PPE currently used in industry.

Links

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