



Australian Government

AVIY0085 Control helicopter during advanced manoeuvres

Release: 1

AVIY0085 Control helicopter during advanced manoeuvres

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 execute advanced helicopter manoeuvres and procedures in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) and national operating standards.

It includes turning a helicopter steeply, performing autorotative flight, and landing on and lifting off sloping ground. It also includes landing, taking off and manoeuvring in a confined area; executing limited power take-offs, approaches and landings; and taking off and landing at a pinnacle or ridge line.

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 Turn helicopter steeply | 1.1 Airspace cleared procedure is completed |
| | 1.2 Steep turns are performed onto a nominated heading or geographical feature, including maintaining altitude, descending through a minimum descent of 500 ft and in balance |
| 2 Perform autorotative flight | 2.1 Autorotative flight is entered and maintained at a nominated speed in balanced flight |
| | 2.2 Rotor revolutions per minute (RRPM) are maintained within limitations during autorotative flight |
| | 2.3 Power recovery is performed anticipating and complying with nominated minimum descent altitude |
| | 2.4 Power termination is performed maintaining RRPM within limitations |
| | 2.5 Autorotative landing is performed |
| 3 Land on and lift off from sloping ground | 3.1 A slope landing is planned and conducted in accordance with the wind and slope limits specified for the helicopter |
| | 3.2 Appropriate slope landing technique is used |
| | 3.3 Security of the helicopter is ensured on the sloping surface prior to reducing rotor RPM |
| | 3.4 Lift-off from sloping ground is planned and conducted in accordance with the wind and slope limits of the helicopter |
| | 3.5 Appropriate slope lift-off technique is used |
| | 3.6 A stable hover is established above the lift-off position clear of all obstacles |

4 Land, manoeuvre and take off in a confined area

- 4.1** A confined area landing is planned and conducted in accordance with the limitations for the helicopter
- 4.2** Helicopter performance is confirmed, which includes power checks as applicable
- 4.3** Confined area is inspected, and a plan is determined, including an appropriate approach and departure path
- 4.4** Approach path is intercepted and maintained to the termination point
- 4.5** A suitable landing is completed at the lift-off and land area
- 4.6** A take-off is planned from a confined area in accordance with the limitations for the helicopter
- 4.7** The helicopter's take-off performance calculated and confirmed as adequate for the confined area
- 4.8** An appropriate abort point is determined
- 4.9** All obstacles are identified on the departure patch and a possible abort path in the confined area
- 4.10** Take-off and departure from the confined area is conducted remaining clear of obstacles with a margin that is applicable to the operation
- 4.11** Manoeuvring in a confined area is planned in accordance with the limitations for the helicopter
- 4.12** Helicopter's performance is confirmed, including power checks as applicable
- 4.13** Obstacles in the confined area are identified
- 4.14** Helicopter is manoeuvred in the confined area while remaining clear of obstacles
- 4.15** Helicopter is operated within its limitations

5 Execute limited power take-off

- 5.1** Helicopter's performance is confirmed using its performance charts

- 5.2 Maximum, or nominated, power is applied while maintaining optimum RRPM
- 5.3 Helicopter is accelerated at an appropriate rate
- 5.4 Translational lift effect is recognised and controlled
- 5.5 Direction of departure path is maintained then balanced when appropriate
- 5.6 Climb is established and maintained
- 5.7 Obstacles are identified and avoided
- 6 **Execute limited power approach and landing**
 - 6.1 Helicopter's performance is confirmed using its performance charts
 - 6.2 Landing area available is confirmed and is sufficient for a safe limited power approach and landing
 - 6.3 A plan for approach is determined, including the nomination of a suitable touchdown point
 - 6.4 The planned approach path is intercepted appropriate for the performance of the helicopter in the prevailing conditions
 - 6.5 Helicopter's airspeed is managed with the optimum RRPM appropriate to the power available and landing environment
 - 6.6 Effective translational lift is maintained until touchdown is assured
 - 6.7 Balance and direction of approach path is maintained
 - 6.8 Touchdown on the nominated touchdown point is completed
 - 6.9 Helicopter is controlled on the ground
- 7 **Land on pinnacle or ridge line**
 - 7.1 A pinnacle or ridgeline landing is planned in accordance with the limitations of the helicopter

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| | 7.2 | Ridgeline or pinnacle is inspected as applicable, and a plan is determined including an appropriate approach and departure path |
| | 7.3 | Local environment conditions are assessed the for effects of the terrain on wind and turbulence |
| | 7.4 | The approach path to the termination point is intercepted and maintained |
| | 7.5 | Effective translational lift is maintained until touchdown is assured |
| | 7.6 | A terminate to a hover is completed over the selected landing and lift-off area |
| | 7.7 | Touchdown on nominated touchdown point is completed |
| | 7.8 | Helicopter is controlled on the ground. |
| 8 | Take off from pinnacle or ridgeline | |
| | 8.1 | Take-off from a pinnacle or ridgeline is planned in accordance with the limitations of the helicopter |
| | 8.2 | Helicopter's take-off performance is calculated and confirmed as adequate for the departure |
| | 8.3 | An appropriate abort point determined |
| | 8.4 | All obstacles on the departure patch and proposed abort path for the pinnacle or ridgeline are identified |
| | 8.5 | Take-off and departure from the pinnacle or ridgeline are conducted remaining clear of obstacles with a margin that is applicable to the operation |

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 AVIY0063 Execute advanced helicopter manoeuvres and procedures.

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 AVIY0085 Control helicopter during advanced manoeuvres

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 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 precautions and required action 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
- completing lift-off from sloping ground
- completing landing on sloping ground
- following air traffic control (ATC) procedures and instructions
- identifying and correctly using relevant equipment
- 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
- interpreting/using a helicopter manufacturer height-velocity diagram/graph
- 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
- operating electronic communications equipment to required protocol
- performing autorotative flight
- reading, interpreting and following relevant regulations, instructions, procedures, information and signs
- reporting and/or rectifying identified problems promptly in accordance with regulatory requirements and workplace procedures
- selecting and using relevant equipment
- selecting and using required personal protective equipment (PPE) conforming to industry and WHS/OHS standards
- setting local or area barometric pressure adjusted for sea level (QNH) at appropriate stages of flight

- solving problems
- using instruments to monitor helicopter performance
- 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:

- actions to be conducted following a forced landing
- aerodynamic factors affecting helicopter flight performance, including:
 - aerodynamic forces
 - dynamic rollover
 - settling with power
 - recirculation
 - loss of tail rotor (anti-torque) effectiveness (LTE)
- all applicable checklist items
- application of a height/velocity diagram/graph
- basic principles of aerodynamics
- Civil Aviation Safety Regulations (CASR) Part 61 Manual of Standards Schedule 3 Aeronautical Knowledge relevant to helicopter operations
- cross-wind and rotor control limits for the helicopter cross-wind loss of rotor control limits for helicopter type flown
- emergency radio procedures
- functions and effects of all helicopter controls
- hazards and risks when executing advanced helicopter manoeuvres and procedures and precautions for controlling the risks
- helicopter performance limitations
- instructions, procedures and information that is relevant to executing advanced manoeuvres and procedures
- local ATC procedures and instructions
- local weather conditions
- pinnacle and ridge line landing techniques, including:
 - intercepting and maintaining the approach path to the termination point
 - maintaining effective translational lift until touchdown is assured
 - terminating to a hover over selected landing and lift-off area
 - touching down on nominated touchdown point
 - controlling helicopter on the ground
- pinnacle and ridge line lift-off techniques, including:
 - planning take-off from in a pinnacle or ridgeline
 - calculating and confirming helicopter take-off performance is adequate for departure

- determining an appropriate abort point as required
- conducting take-off and departure from pinnacle or ridgeline remaining clear of obstacles with a margin that is applicable to the operation
- power required and power available curves
- pressure altitude and density considerations
- problems that may occur when executing advanced helicopter manoeuvres and procedures, and appropriate action that should be taken in each case
- procedures for using performance charts
- purpose and functions of helicopter systems
- relevant instructions, procedures and information
- relevant sections of CASRs and Civil Aviation Orders
- relevant WHS/OHS and environmental procedures and regulations
- typical hazards and risks associated with conducting advanced manoeuvres, and precautions and procedures to control the risks
- wind and terrain effects.

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.

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