



Australian Government

Department of Education, Employment and Workplace Relations

AVIY4015B Control helicopter in normal flight

Revision Number: 1

AVIY4015B Control helicopter in normal flight

Modification History

Not applicable.

Unit Descriptor

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This unit involves the skills and knowledge required to control a helicopter in normal flight, including climbing a helicopter, maintaining straight and level flight, descending a helicopter, turning a helicopter, controlling a helicopter at any speed and performing circuits and approaches. Licensing, legislative, regulatory or certification requirements are applicable to this unit.

Application of the Unit

Application of the Unit

Work must be carried out in compliance with the relevant licence and aircraft rating requirements of the Civil Aviation Safety Authority (CASA) and/or ADF; airspace control requirements and Day Visual Flight Rules (Day VFR); and aircraft control principles, regulations, safety codes, protocols and procedures required when controlling a helicopter in normal flight.

Use for ADF Aviation is to be in accordance with relevant Defence Orders and Instructions and applicable CASA compliance.

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

Work is performed under limited supervision.

This unit is nominally packaged a Certificate IV.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability Skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Climb helicopter	<ul style="list-style-type: none">1.1 Adjustments are made to attitude and power to achieve an increase of altitude at normal, maximum rate (V_v), maximum angle (V_x) and cruise climb flight configurations from straight flight and turns1.2 Helicopter is maintained in balanced flight during adjustments to attitude and power1.3 Helicopter is levelled off from climb at nominated altitude1.4 Lookout is maintained during climb using a systematic scan technique at a rate determined by traffic density, visibility and terrain1.5 Situation awareness is maintained
2 Maintain straight and level flight	<ul style="list-style-type: none">2.1 Attitude and power are adjusted to achieve a constant height, heading and speed while remaining in balanced flight2.2 Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility or terrain2.3 Natural horizon is used as primary attitude reference2.4 Altitude is maintained within allocated height band
3 Descend helicopter	<ul style="list-style-type: none">3.1 Attitude and power are adjusted to enter and maintain a descent from straight flight and turns whilst maintaining balanced flight3.2 Helicopter is levelled from a descent at a nominated altitude3.3 Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility or terrain3.4 Clearance ahead and below is maintained3.5 Air traffic control altitude restrictions are observed3.6 Helicopter does not exceed design limits during descent3.7 Situation awareness is maintained at all times during helicopter descent3.8 Appropriate precautions are taken to avoid carburettor icing
4 Turn helicopter	<ul style="list-style-type: none">4.1 'Airspace cleared' procedure is carried out4.2 Attitude and power are adjusted to enter and maintain turns at varying rates from level, climbing and descending flight to achieve nominated tracks4.3 Helicopter is rolled out from the turn to achieve a nominated heading or geographical feature4.4 Lookout is maintained in direction of turn and above or below using a systematic scan technique at a rate determined by traffic density, visibility and terrain4.5 Engine operating limits are not exceeded
5 Control helicopter at	<ul style="list-style-type: none">5.1 Attitude and power are adjusted, accelerated or decelerated to

ELEMENT**PERFORMANCE CRITERIA****any speed**

manoeuvre the helicopter at any specified airspeed within the flight envelope while maintaining balanced flight

5.2 Height awareness is maintained at all times and appropriate adjustments are made as required

5.3 Wind conditions are monitored and appropriate allowance is made

5.4 Helicopter is suitably controlled to ensure that it is operated within its design limits

6 Perform circuits and approaches

6.1 Traffic patterns are conducted in accordance with AIP or local procedures at normal and low altitude appropriate to the helicopter type

6.2 When conducting traffic patterns, due allowance is made for the wind and all checklists are completed

6.3 Radiotelephone procedures are followed during circuits in accordance with workplace procedures and regulatory requirements

6.4 The approach path applicable to the helicopter type is intercepted and maintained whilst remaining clear of other traffic

6.5 Lookout is maintained during circuits and approaches using a systematic scan technique at a rate determined by traffic density, visibility and terrain

6.6 Conflicting traffic is recognised and appropriate responses are made

6.7 Right of way rules are applied and compliance with the rules is maintained

6.8 Radio listening watch is maintained in accordance with workplace procedures and regulatory requirements

6.9 Weather conditions are monitored and appropriate responses are made

6.10 Fuel status is monitored and appropriate responses are made

7 Comply with airspace requirements

7.1 Helicopter is maintained within a specified area and/or track while complying with air traffic requirements, controlled or restricted airspace conditions or limitations and reacting to factors that affect the safe progress of a flight

Required Skills and Knowledge

REQUIRED KNOWLEDGE AND SKILLS

This describes the essential knowledge and skills and their level required for this unit.

Required knowledge:

- Relevant sections of Civil Aviation Safety Regulations and Civil Aviation Orders
- Relevant OH&S and environmental procedures and regulations
- Principles of aerodynamics
- Functions and effects of all helicopter controls
- Procedures for setting power in normally aspirated, turbocharger, supercharged or turbine engines as applicable
- Forces and moments acting on a helicopter and precautions to manage their effects:
 - in straight and level flight
 - in a climb
 - in a turn
 - during descent
- Rotational and induced airflow
- Application of heading and track
- Theory and application of best rate and angle of climb
- Use of instruments to monitor helicopter performance and significance of colour coding
- Application of the height/velocity diagram/graph
- Procedures for the use of trim controls if appropriate
- Cause and effects of retreating blade stall
- Conditions leading to loss of tail rotor/anti-torque control
- Recognition and avoidance of settling with power/vortex ring state
- The circumstances and procedures for the use of carburettor heat
- Circuit patterns and procedures
- The dangers of wind shear, turbulence and wake turbulence
- The effect of turning and acceleration on magnetic compass accuracy
- Hazards and risks when controlling a helicopter in normal flight and precautions for controlling the risks
- Problems that may occur when controlling a helicopter in normal flight and appropriate action that should be taken in each case

Required skills:

- Apply the knowledge when controlling a helicopter in normal flight
- Select and use relevant controls, including throttle, rotor controls, anti-torque pedals and

REQUIRED KNOWLEDGE AND SKILLS

collective and cyclic pitch controls

- Read and interpret instructions, procedures and information relevant to the control of a helicopter in normal flight
- Use instruments to monitor helicopter performance
- Solve problems associated with controlling a helicopter in normal flight
- Communicate effectively with others when controlling a helicopter in normal flight
- Read and interpret instructions, regulations, procedures and other information relevant to controlling a helicopter in normal flight
- Interpret and follow operational instructions and prioritise work
- Complete documentation related to controlling a helicopter in normal flight
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when controlling a helicopter in normal flight
- Adapt appropriately to cultural differences in the workplace, including modes of behaviour and interactions with others
- Promptly report and/or rectify any identified problems that may occur when controlling a helicopter in normal flight in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events that may arise when controlling a helicopter in normal flight
- Apply precautions and required action to minimise, control or eliminate hazards that may exist when controlling a helicopter in normal flight
- Monitor and anticipate operational problems and hazards and take appropriate action
- Monitor work activities in terms of planned schedule
- Modify activities dependent on differing workplace contingencies, situations and environments
- Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- Adapt to differences in equipment and operating environment in accordance with standard operating procedures
- Select and use required personal protective equipment conforming to industry and OH&S standards
- Implement OH&S procedures and relevant regulations
- Identify and correctly use equipment required when controlling a helicopter in normal flight

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills, the range statement and the assessment guidelines for this Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of applying:
 - the underpinning knowledge and skills
 - relevant legislation and workplace procedures
 - other relevant aspects of the range statement

Context of and specific resources for assessment

- Performance is demonstrated consistently over a period of time and in a suitable range of contexts
- Resources for assessment include:
 - a range of relevant exercises, case studies and/or other simulated practical and knowledge assessment, and/or
 - access to an appropriate range of relevant operational situations in the workplace
 - In both real and simulated environments, access is required to:
 - relevant and appropriate materials and equipment, and
 - applicable documentation including workplace procedures, regulations, codes of practice and operation manuals

Method of assessment

- Assessment of this unit must be undertaken by a registered training organisation
- As a minimum, assessment of knowledge must be conducted through appropriate written/oral tests
- Practical assessment must occur:
 - through activities in an appropriately simulated environment at the registered training organisation, and/or
 - in an appropriate range of situations in the workplace

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

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|--|--|
| Tasks may be undertaken in: | <ul style="list-style-type: none"> • variable weather conditions in accordance with Day Visual Flight Rules |
| Performance may be demonstrated in: | <ul style="list-style-type: none"> • single engine helicopter • multi engine helicopter • single main rotor helicopter • multi main rotor helicopter • variable air traffic conditions • variable flight situations • abnormal situations |
| Performance may be demonstrated on an helicopter with: | <ul style="list-style-type: none"> • fully functioning dual controls • an electronic intercom system • dual control brakes • wheeled or skidded undercarriage |
| Crew may include: | <ul style="list-style-type: none"> • single pilot • multi crew |
| Limitations may be imposed by: | <ul style="list-style-type: none"> • local noise abatement requirements and curfews |
| Classes of airspace are: | <ul style="list-style-type: none"> • those designated by the Civil Aviation Safety Authority |
| Operational hazards during normal flight manoeuvres may include: | <ul style="list-style-type: none"> • other aircraft • loose objects • personnel • birds • propeller/tail rotor/rotor wash and jet blast |
| Guidance during normal flight operations may be provided by: | <ul style="list-style-type: none"> • air traffic control instructions • light signals • aerodrome markings |
| Turns may include: | <ul style="list-style-type: none"> • level • climbing • descending |
| Checklists may include: | <ul style="list-style-type: none"> • pre-flight • pre-start • engine start • pre-taxi • take-off • after take-off |

RANGE STATEMENT

- approach and landing
 - shutdown
 - post-flight
- Circuit height may include:
- standard
 - low-level
- Dependent on the type of organisation concerned and the local terminology used, workplace procedures may include:
- company procedures
 - enterprise procedures
 - organisational procedures
 - established procedures
 - standard operating procedures
- Procedures maintaining compliance with airspace requirements are:
- geographical limits of the flight area is demonstrated on a chart
 - prominent geographical features are identified using a chart
 - the limits of the flight area are identified on the ground
 - the position of controlled airspace is determined using a chart and geographical features
 - restricted areas are identified using a chart and geographical features
 - departure from the circuit area and transition to the flight area is completed without incident
 - departure from the flight area and transition to the circuit area is completed without incident
- Information/documents may include:
- relevant sections of Civil Aviation Safety Regulations and Civil Aviation Orders including Day Visual Flight Rules (Day VFR)
 - in Defence context, relevant Defence Orders and Instructions
 - Flight Manual/Pilot's Operating Handbook (POH)
 - Manual of Standards - Pilot Licensing (MOS-PL)
 - Aeronautical Information Publication (AIP)
 - En Route Supplement Australia (ERSA)
 - charts
 - operations manuals
 - approved checklists
 - workplace procedures and instructions and job specification
 - induction and training materials
 - conditions of service, legislation and industrial agreements including workplace agreements and awards
- Applicable regulations and
- relevant Civil Aviation Safety Regulations and Civil

RANGE STATEMENT

legislation may include:

Aviation Orders

- in Defence context, relevant Defence Orders and Instructions
- relevant state/territory OH&S legislation
- relevant state/territory environmental protection legislation
- relevant Australian Standards
- relevant licence and aircraft rating requirements of the Civil Aviation Safety Authority (CASA) such as:
 - Day VFR Syllabus
 - Manual of Standards
- relevant Defence documentation such as:
 - Defence Orders and Instructions
 - approved curricula and training documentation

Performance includes tolerances specified in either of:

Unit Sector(s)

Not applicable.

Competency field

Competency Field

Y - Aircraft Operation and Traffic Management