



Australian Government

AVIY5065 Operate a multi-engine helicopter

Release: 1

AVIY5065 Operate a multi-engine helicopter

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 multi-engine helicopter, in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority and national operating standards.

It includes operating a multi-engine helicopter in all phases of flight, managing engine failures and malfunctions, performing a rejected take-off with engine failure, and conducting a go-around or missed approach with an engine failure.

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.

1 Operate a multi-engine helicopter in all phases of flight

PERFORMANCE CRITERIA

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

1.1 Normal multi-engine helicopter operations on ground and in flight are conducted in accordance with workplace procedures and the aircraft flight manual (AFM)/pilot's operating handbook (POH)

1.2 Single engine operations contingencies for all phases of flight are anticipated and planned for

1.3 Single engine operations contingency plan is briefed to crew members as required

2 Manage engine failure/malfunction

2.1 Control of helicopter is maintained and/or regained

2.2 Failed/malfunctioning engine is identified and confirmed

2.3 Power set on serviceable engine/s and helicopter configuration is adjusted to achieve desired aircraft performance

2.4 Failed/malfunctioning engine is managed

2.5 Decision to continue or abort approach/landing is made

2.6 Decision height for landing is nominated

2.7 Indicated airspeed is maintained at or above minimum level flight speed for one inoperative engine

2.8 Air traffic control (ATC) or another agency capable of assistance is advised of situation and intentions

2.9 Flight profile is flown from which a controlled landing could be achieved

2.10 Recovery to a suitable landing site is evaluated and conducted

3 Perform rejected take-off with engine failure

3.1 Requirement for a rejected take-off is recognised

3.2 Rejected take-off procedures are implemented

3.3 Contingency power on remaining engine/s is applied as required

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|---|-----|--|
| | 3.4 | Controlled landing in rejected take-off distance available is performed |
| 4 Conduct go-around or missed approach with engine failure | 4.1 | Requirement for a go-around or missed approach is identified and confirmed |
| | 4.2 | Control of helicopter is maintained and/or regained |
| | 4.3 | Engine inoperative go-around is performed from decision height |

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.

Unit Mapping Information

This unit replaces and is equivalent to AVIY5065A Operate a multi-engine helicopter.

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 AVIY5065 Operate a multi-engine helicopter

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
- applying precautions and required action to minimise, control or eliminate identified hazards
- applying relevant air safety practices and regulations
- applying relevant helicopter aeronautical knowledge
- communicating effectively with others
- completing relevant documentation
- controlling and managing aircraft during flight with failed engine/s
- extracting, calculating and applying all performance information applicable to aircraft
- following relevant legislation and workplace procedures
- identifying and correctly using relevant equipment
- identifying and managing emergency and abnormal situations while maintaining control of aircraft
- identifying critical or malfunctioning engine correctly
- implementing contingency plans
- implementing work health and safety (WHS)/occupational health and safety (OHS) procedures and relevant regulations
- maintaining compliance with relevant regulatory requirements
- 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
- 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 required personal protective equipment conforming to industry and WHS/OHS standards
- setting local or area barometric pressure adjusted for sea level (QNH) at appropriate stages of flight

- setting priorities and managing workload to ensure safe task completion in time available
- 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 include knowledge of:

- aircraft performance limitations
- aircraft systems:
 - fuel system
 - hydraulic system
 - electrical system
 - oil system
 - stability augmentation, automatic flight control systems (AFCS) and flight director system (FDS)
 - anti-icing and de-icing systems
 - heating and ventilation systems
 - pitot and static system
 - fire extinguisher system
 - engine systems
 - transmission and rotor systems
 - display systems
 - landing gear (fixed or retractable)
- CASR Part 61 Manual of Standards Schedule 3 Aeronautical Knowledge relevant to multi-engine helicopter operations
- climb performance, hover out of ground effect and height-velocity diagram charts
- climb, cruise, descent procedures including airspeeds, configurations, method of drift allowance, setting of flight instruments and non-normal/emergency procedures
- compressor speed (N1) and torque split indications
- corrective action to be taken when engine run-up or run-down has been diagnosed
- emergency procedures for:
 - engine failure in hover
 - engine failure during taxiing

- engine failure during transitions before and after take-off
- engine failure in cruise
- engine failure on final approach before and after landing
- engine fire on the ground and airborne
- electrical fire on the ground and airborne
- cabin fire in flight
- engine, transmission and any other stated operating limits in the AFM
- equi-time point (ETP) for one engine inoperative
- failed engine operations
- general aircraft data
- how to identify malfunctioning governor in flight and manage the related engine
- in a Defence context, relevant Defence Orders and Instructions
- initial rate of climb and climb gradient for one engine inoperative for specified conditions
- key hazards, typical causal factors and contributing operational situations, avoidance and recognition of symptoms and recovery techniques:
 - vortex ring state
 - ground resonance
 - loss of tail rotor effectiveness (LTE)
 - low 'g' and mast bumping
 - overpitching or low RRPM – rotor stall
 - retreating blade stall
 - recirculation
 - dynamic rollover
- low speed wind limits
- make, type and model of helicopter, designation of engines, take-off and rated power
- markings on the performance instruments that apply to failed engine operations
- normal and take-off/landing procedures
- point of no return (PNR) for one engine inoperative
- range of aircraft increases or decreases following an engine failure
- relevant sections of Civil Aviation Safety Regulations and Civil Aviation Orders
- relevant WHS/OHS and environmental procedures and regulations
- rotor speed (RRPM) limits (Power ON and Power OFF)
- stated airspeed limitations:
 - velocity never exceed – Vne (at varying all up weights (AUW) and density altitudes)
 - velocity maximum level flight – Vh
 - configuration airspeed limit
 - velocity landing operations – Vlo
 - velocity turbulence penetration – Vturb
 - maximum crosswind
- slope landing limitations
- take-off and landing topics:

- continuing and rejected take-off distances
- take-off decision point
- landing decision point
- technique and procedures for carrying out a rejected take-off after engine/system/s failure/warnings, including related safety factors
- technique and procedures used during engine failure on take-off, appropriate reference airspeeds, and specific pilot actions required
- technique and procedures used to conduct a go-around or missed approach during engine failure on take-off, appropriate reference airspeeds, and specific pilot actions required
- weight and balance topics:
 - weight, balance and performance
 - permissible take-off weight
 - maximum gross weight, landing weight, ramp weight and zero fuel weight
 - centre of gravity position for any specified conditions
 - centre of gravity limitations
 - appropriate charts to determine centre of gravity
 - calculated centre of gravity position and confirmation it is within limits.

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.

Links

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