



Australian Government

AVIY0025 Operate powerlift and tilt rotor remote pilot aircraft systems

Release: 1

AVIY0025 Operate powerlift and tilt rotor remote pilot aircraft systems

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 powerlift and tilt rotor remote pilot aircraft systems (RPAS) in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) and national operating standards.

It includes climbing an aircraft, maintaining straight and level flight, descending an aircraft and turning an aircraft. It also includes controlling an aircraft at any speed, performing circuits and approaches, and complying with airspace requirements.

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.

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

Pre-requisite Unit

AVIW0028 Operate and manage remote pilot aircraft systems

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 Launch aircraft in hover mode

- 1.1 Adjustments are made to attitude and power to achieve an increase of altitude at normal, maximum rate (V_y), maximum angle (V_x) and cruise climb flight configurations from straight and level flight
- 1.2 Appropriate altimeter settings are set
- 1.3 Aircraft is maintained in balanced flight during adjustments to attitude and power
- 1.4 Power is maintained as altitude increases
- 1.5 Aircraft is converted from power lift to tilt-rotor mode and levelled off from climb at nominated altitude
- 1.6 Lookout is maintained during climb using a systematic scan technique at a rate determined by traffic density, visibility and terrain
- 1.7 Situational awareness is maintained at all phases flight

2 Maintain straight and level flight

- 2.1 Attitude and power are adjusted to achieve a constant height, heading and speed while remaining in balanced flight
- 2.2 Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility or terrain
- 2.3 Natural horizon is used as primary attitude reference
- 2.4 Altitude is maintained within allocated height band

3 Descend aircraft

- 3.1 Attitude and power are adjusted to enter and maintain a descent from straight and level flight
- 3.2 Aircraft is levelled from a descent at a nominated altitude
- 3.3 Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility or terrain
- 3.4 Clearance ahead and below is maintained
- 3.5 Air traffic control (ATC) altitude restrictions are observed

- 3.6 Design limits are not exceeded during aircraft descent
 - 3.7 Appropriate altimeter settings are set
 - 3.8 Situation awareness is maintained during aircraft descent
- 4 Turn aircraft**
 - 4.1 Attitude and power are adjusted to enter and maintain turns at varying rates from level, climbing and descending flight to achieve nominated tracks
 - 4.2 Aircraft is rolled out from the turn to achieve nominated heading or geographical feature alignment
 - 4.3 Aircraft balanced flight is ensured as required
 - 4.4 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 terrain
 - 4.5 Engine operating limits are not exceeded
- 5 Control aircraft at any speed**
 - 5.1 Attitude and power are adjusted, accelerated or decelerated to manoeuvre aircraft at any specified airspeed within the flight envelope while maintaining balanced flight
 - 5.2 Height awareness is constantly maintained and appropriate adjustments made as required
 - 5.3 Wind conditions are monitored and appropriate allowance made
 - 5.4 Aircraft is suitably controlled to ensure it is operated within its design limits
- 6 Perform circuits and approaches**
 - 6.1 Circuits are joined and conducted in accordance with aeronautical information publication (AIP) and/or local procedures at normal and low altitude appropriate to the aircraft type
 - 6.2 Due allowance is made for wind and all appropriate checklist items are completed when performing circuits and approaches
 - 6.3 Radiotelephone procedures are followed during circuit operations
 - 6.4 Approach path applicable to aircraft type is intercepted and maintained while 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 made
 - 6.7 Right of way rules are applied and compliance with these rules is maintained
 - 6.8 Weather conditions are monitored and appropriate responses made
 - 6.9 Fuel/power status is monitored and appropriate responses made
 - 6.10 Aircraft approach is conducted to establish hover or to conduct a landing at the nominated termination point
- 7 **Comply with airspace requirements**
 - 7.1 Suitable aeronautical charts are interpreted and used to maintain airspace compliance requirements
 - 7.2 Circuit departure is performed
 - 7.3 Aircraft 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
 - 7.4 Orientation is maintained to geographical features with the aid of suitable charts and maps
 - 7.5 Circuit join is performed
- 8 **Land in hover mode**
 - 8.1 Aircraft is adjusted appropriately using correct throttle on approach
 - 8.2 Aircraft is converted from tilt rotor to power lift mode and landing sequence is initiated
 - 8.3 Hover is maintained using micro adjustments to maintain position
 - 8.4 Readiness to land is determined and completed in a safe manner

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

No equivalent unit.

Links

AVI Training Package Companion Volume Implementation Guide available on VET Net: - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=4725260a-0af3-4daf-912b-ef1c2f3e5816>

Assessment Requirements for AVIY0025 Operate powerlift and tilt rotor remote pilot aircraft systems

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 aircraft aeronautical knowledge
- applying relevant legislation and workplace procedures
- communicating effectively with others when controlling aircraft in normal flight
- completing relevant documentation
- identifying and correctly using relevant equipment
- implementing contingency plans
- implementing work health and safety (WHS) procedures and relevant regulations
- interpreting and following operational instructions and prioritise work
- 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 relevant controls, including throttle, rotor controls, anti-torque pedals and collective and cyclic pitch controls
- 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
- solving problems associated with controlling an aircraft in normal flight
- turning an aircraft with the following parameters:
 - level turns
 - climbing turns with 20° bank angle

- powered descending turn with 30° bank angle
- using instruments to monitor aircraft performance
- working collaboratively with others when controlling aircraft in normal flight
- 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:

- application of a height/velocity diagram/graph
- application of heading and track
- Civil Aviation Safety Regulation (CASR) Part 101 Manual of Standards (MOS) Aeronautical Knowledge relevant to remote pilot aircraft operations
- cause and effects of retreating blade stall
- circuit patterns and procedures
- circumstances and procedures for the use of carburettor heat
- conditions leading to loss of tail rotor/anti-torque control during descent
- dangers of wind shear, turbulence and wake turbulence
- effect of turning and acceleration on magnetic compass accuracy
- forces and moments acting on an aircraft and precautions to manage their effects
- functions, and primary and secondary effects of all aircraft controls
- hazards and risks when controlling an aircraft in normal flight and precautions for controlling the risks, including:
 - in a climb
 - in a turn
 - in straight and level flight
- aircraft instruments and monitoring aircraft performance
- managing non-normal and emergencies in the circuit area
- principles of aerodynamics
- problems that may occur when controlling an aircraft in normal flight and appropriate action that should be taken in each case
- procedures for setting power in normally aspirated, turbocharger, supercharged or turbine engines
- recognition and avoidance of settling with power/vortex ring state
- relevant sections of CASRs and Civil Aviation Orders
- relevant WHS and environmental procedures and regulations
- rotational and induced airflow
- theory and application of best rate and angle of climb
- use of instruments to monitor aircraft performance and significance of colour coding
- vortex ring state
- wind shear, turbulence and wake turbulence.

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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