



Australian Government

AVIY0038 Operate aeroplane at low level

Release: 1

AVIY0038 Operate aeroplane 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 an aeroplane at low level in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) and national operating standards.

It includes planning low-level flight operations, operating aeroplane safely during low-level flight operations, and manoeuvring aeroplane at low-level. It also includes undertaking low-level, straight and level flight, executing low-level turns, executing simulated forced landing from below 500 feet 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 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.

Pre-requisite Unit

Not applicable.

Competency Field

Y – Aircraft Operation and Traffic Management

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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

1 Plan low-level flight operations

- 1.1** Low-level flight hazards are identified, evaluated and treated in accordance with aviation risk management processes
- 1.2** Task requirements are confirmed through consultation with stakeholders involved in low-level operations
- 1.3** Aeroplane type and performance capability are confirmed as appropriate for task
- 1.4** Effects of fatigue and physical health on pilot performance are assessed and allowed for when planning low-level operations
- 1.5** Actual and forecast weather conditions are analysed and applied to low-level operations
- 1.6** Area of operations is identified using chart and geographical features
- 1.7** Geographical characteristics of area of flying operations are assessed to ensure safe completion of task
- 1.8** Location of ground support personnel is confirmed
- 1.9** Appropriate reconnaissance and pre-manoeuve or other relevant checks are conducted prior to descending below 500 feet AGL

2 Operate aeroplane safely during low-level flight operations

- 2.1** Pre-flight inspections are performed and aircraft serviceability determined prior to flight
- 2.2** Navigation systems are initialised and data validity checks conducted
- 2.3** Aeroplane is operated correctly and safely in accordance with aircraft operating requirements
- 2.4** Aeroplane take-off is conducted within authorised operational conditions and limitations

3 Manoeuvre aeroplane at low level

- 3.1** Low-level flight manoeuvres are performed safely using pre-planned manoeuvres at planned altitudes
- 3.2** Effects of wind velocity, false horizons, rising ground and mountainous terrain are managed and control of

aeroplane correctly maintained

- 3.3** Pilot's visual attention is focused outside the cockpit
- 3.4** Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility and/or terrain
- 3.5** Natural horizon is used as primary attitude reference
- 3.6** Nose of aircraft is cleared to ensure forward visibility when appropriate
- 3.7** Situational awareness is maintained at all times during low-level manoeuvres
- 3.8** Aeroplane is safely manoeuvred adjacent to power lines and wires
- 3.9** Obstacles are identified and are appropriately and safely avoided
- 3.10** Personnel, animals, vehicles and buildings are identified and are appropriately and safely avoided
- 3.11** Height is maintained by visual reference to the earth's surface when below 500 AGL
- 3.12** Weather conditions are monitored and appropriate responses made
- 3.13** Fuel status is monitored and appropriate responses made
- 3.14** Local and published noise abatement requirements and curfews are observed
- 4 Undertake low-level, straight and level flight**
 - 4.1** Aircraft energy state and inertia is managed to maintain safe low-level flight
 - 4.2** Wind velocity is estimated and is appropriately taken into account during low-level manoeuvres
 - 4.3** Height is adjusted and effects of rising and descending terrain are considered during low level, straight and level flight
 - 4.4** Aircraft drift is recognised and compensated for during low-level flight
 - 4.5** Obstructions are identified and are appropriately and

- safely avoided
- 5 Execute low-level turns**
- 5.1** Aeroplane is turned at normal cruise speed at angles of bank up to 60 degrees (45 degrees for multi-engine aircraft)
- 5.2** Clearance scan is performed prior to manoeuvre commencement
- 5.3** Power is adjusted to maintain required height over terrain
- 5.4** Effects of flight over water or featureless terrain are managed
- 5.5** Height is adjusted and effects of rising and descending terrain are considered during low-level turns
- 5.6** Effects of gradient wind are compensated for and rollout is anticipated to complete low-level turn
- 6 Execute simulated forced landing from below 500 feet AGL**
- 6.1** Emergency situations requiring a forced landing are identified
- 6.2** Immediate actions are performed in accordance with aircraft flight manual (AFM) and/or pilot's operating handbook (POH)
- 6.3** Aircraft control is maintained during simulated aircraft forced landing
- 6.4** Landing area within safe emergency flight distance is selected and appropriate action plan formulated
- 6.5** Emergency procedures are performed in accordance with AFM/POH and established action plan
- 6.6** Air traffic service and other traffic are advised of intentions during emergency
- 6.7** Aeroplane is landed in accordance with the AFM/POH and established action plan
- 7 Operate at low level in hilly terrain**
- 7.1** Aeroplane is safely manipulated at low level in hilly terrain
- 7.2** Safe operating heights relevant to low-level flight operation type are established and maintained

- 7.3 Safe contour flying techniques are applied
- 7.4 Appropriate natural markers to aid situational awareness are identified and selected
- 7.5 Safe approaches to higher ground, including identification of escape routes, are used during low-level flight operations
- 7.6 Safe turns in hilly terrain are conducted in accordance with accepted flight handling techniques
- 7.7 Situational awareness of effects of wind and turbulence in hilly terrain, including lee effects, is maintained and managed during low-level flight operations
- 7.8 Situational awareness of illusions in hilly terrain, including false horizon effect and shadows, are maintained and managed during low-level flight operations

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 AVIY0006 Operate aeroplane at low level.

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 AVIY0038 Operate aeroplane 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 correct navigation techniques and procedures at low level
- applying knowledge about wind effect in the vicinity of obstructions, mountainous terrain and illusions
- applying knowledge of the effect of false horizons
- applying relevant aeroplane aeronautical knowledge
- applying relevant legislation and workplace procedures
- applying safe contour flying handling techniques
- communicating effectively with others
- completing relevant documentation
- complying with airspace requirements and low-level flight procedures
- conducting procedure turns from a fixed ground reference point and compensating for effect of gradient wind
- establishing and maintaining safe height relevant to low level flight type
- flying at various speed and configurations not below calculated stall speed +15 knots indicated air speed (KIAS) or safe single-engine speed +15 KIAS (for multi-engine aeroplanes)
- identifying and correctly using required equipment
- identifying and justifying a decision to operate aeroplane at low level
- identifying and maintaining a safe distance from pole stay wires
- implementing aviation risk management processes and required action to minimise, control or eliminate identified hazards
- implementing contingency plans
- implementing work health safety (WHS) procedures and relevant regulations
- interpreting and following operational instructions and prioritising work
- maintaining awareness and managing effects of wind and turbulence in hilly terrain, including lee effects
- managing energy state of aircraft, 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 a height below 500 feet above ground level (AGL)
- operating electronic communications equipment to required protocol
- performing pre-flight inspection and determining aircraft serviceability for intended low-level flight
- 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
- reporting and/or rectifying identified problems promptly in accordance with regulatory requirements and workplace procedures
- responding appropriately to wind effect in the vicinity of obstructions, mountainous terrain and illusions
- 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 identified problems
- using relevant instruments to monitor aeroplane 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:

- aeroplane type limitations applicable to low-level flight
- Civil Aviation Safety Regulation (CASR) Part 61 Manual of Standards (MOS) Schedule 3 Aeronautical Knowledge relevant to low-level aeroplane operations
- dangers associated with ‘out of balance’ low-level flight manoeuvres
- flight rules, including:
 - privileges and limitations of a low-level rating
 - provisions of 157 of CASR 1988
 - requirements for flight and pilot responsibilities for flight below 500 feet AGL

- human factors applicable to low-level flight operations, including:
 - human factor issues and their impact on the safety of low-level flight operations
 - dehydration and its impact on pilot cognitive function and reaction time
 - fatigue and its impact on pilot cognitive function and situational awareness
 - stress and its short-term and long-term impact
 - drugs (including over the counter) and their impact on pilot cognitive function, reaction time and coordination
 - spatial disorientation and illusions
- legislative restrictions applicable to low flying
- local air traffic control (ATC) procedures and instructions
- low-level flight operational techniques, including:
 - methods of managing the following factors:
 - wind direction
 - sun glare
 - obstructions, including wires and power lines
 - identifying wire runs and treating/minimising associated risks:
 - preliminary inspection of treatment area
 - how to judge distance to the wire
 - danger and forms of distraction
 - considerations for flying above or under the wire
 - considerations for crossing oblique wires
 - visual cues of wire locations, such as pole runs, type, numbers and attitude
 - insulators, cross-stress and angle of cross-stress, supplementary or spur wires and buildings
 - characteristics and dangers of high wires and guy wires
 - factors affecting misjudgement of wire clearance
 - how to maintain awareness of located wires
 - hazards of mental overload
 - operation of differential global navigation satellite systems (DGNSS) for track guidance, including the importance of maintaining an active scan outside the cockpit while referencing the DGNSS
- maximum rate turns and minimum radius turn criteria
- meteorological factors affecting aeroplane flight performance during low-level flight, including:
 - effects of inversion on low-level flight
 - indicators of mechanical and thermal turbulence and shifting wind and implications for low-level operations
 - winds affecting low-level flying and associated flying conditions
 - effect of mountainous influence on airflow and associated flying conditions
 - weather phenomena hazardous to low-level operations
 - terrain and weather conditions that may lead to disorientation during low-level flight:

- flight into rising ground and toward low ground
- false horizons
- ridgeline and valley effects
- pilot corrective actions
- typical terrain and seasonal effects on local wind direction, strength and mechanical or thermal turbulence
- minimum height for low-level flight by an aircraft over a city, town or populous area
- minimum lateral and vertical distances that an aircraft must avoid persons, vessels, vehicles, structures or livestock over a sparsely populated area
- operations on, or in vicinity of, non-controlled and controlled aerodromes or airstrips, including:
 - restrictions and conditions on low-level operations at aerodromes with movements of regular public transport aircraft
 - circuit requirements at various types of aerodromes and aircraft landing areas (ALAs), including conditions applying to exemption from compliance with Civil Aviation Safety Authority (CASA) published procedures
 - aerial inspection methods and purpose
 - location of, and planning for, obstacle management and ground undulations
- operational planning, including:
 - flight planning and risk management:
 - aviation risk management processes
 - low-level flight hazards and controls applicable to:
 - hilly terrain
 - downdraughts
 - turbulence
 - false horizon effect
 - high country
 - irregular areas
 - pre-flight and after-flight inspections:
 - aircraft safety criteria
 - inspections and flight preparation
 - operational inspections:
 - operating area inspection methods and purpose
 - limitations of ground inspections
 - low-flying restrictions, planning notice, precautions and procedures with respect to overflying, or in close proximity to, buildings during low-level flight operations, including stating the required safety distances and minimum height from buildings
- problems that may occur when operating an aeroplane at low level and appropriate action that should be taken in each case
- relevant WHS and environmental procedures and regulations
- relevant sections of CASRs and Civil Aviation Orders

- unintended incipient spinning inducement and pilot corrective actions.

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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