



Australian Government

AVIY0039 Conduct aerial application operations

Release: 1

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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 application of skills and knowledge required to conduct aerial application operations in compliance with the relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) and national operating standards.

It includes conducting pre-flight operations, performing operational area evaluations, conducting an aerial survey, applying substances through aerial application, and conducting global navigation satellite system (GNSS) swath guidance equipment operations.

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

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 Conduct pre-flight actions

- 1.1** Own fitness for flight and planned operations is self-assessed
- 1.2** Operational aircraft type is determined for suitability for type of aerial application operation
- 1.3** Aircraft and role equipment are checked and assessed for serviceability prior to commencing flight operations
- 1.4** Required applicable maintenance documentation is compiled and checked for accuracy and completeness
- 1.5** Role equipment calibration is checked and adjusted as required
- 1.6** Planned aerial application operations are assessed for potential or actual hazards
- 1.7** Fuel requirements are determined and established within aerial application management plans
- 1.8** Logistical considerations are addressed within scope of application management plan, including airstrip/aerodrome status, ground support requirements, personal supplies and air traffic service requirements

2 Conduct planning and risk management

- 2.1** Suitability of current and forecast weather is determined
- 2.2** Application management plan is developed and used as the basis for aerial application operations
- 2.3** Potential and actual hazards and operational requirements are identified, risks to aerial application operations assessed and appropriate risk controls implemented in accordance with the application management plan
- 2.4** Treatment area map is correctly interpreted
- 2.5** Command decision on the safety of the proposed application, including refusing to undertake an application where the risks are considered to be too high, is made as required
- 2.6** Appropriate selection of application pattern and direction of treatment is made taking into consideration

- safety, efficiency, hazards and terrain
- 2.7** Acceptable aircraft performance for aerial application operational conditions is confirmed through performance planning
- 2.8** Normal and abnormal operational communications and signals are confirmed
- 3 Perform operational area evaluation**
- 3.1** Aircraft is flown to aerial application operational area using appropriate flight and navigational techniques
- 3.2** Operational landing areas are assessed for length, condition, approach/landing direction, hazard identification and meteorological conditions
- 3.3** Issues relating to aircraft weight, performance, dimensions, load and meteorological conditions are identified and managed
- 3.4** Landing areas suitable for conducting aerial application operations are selected
- 3.5** Aircraft pre-landing/take-off checks are performed in accordance with operational procedures
- 3.6** Appropriate landing and take-off techniques are conducted during aerial application operations
- 3.7** Appropriate dumping point for each take off, including adequate safety buffers, is identified
- 3.8** One-way airstrip operations are safely applied as required
- 3.9** Safe helicopter operations from a marginal helicopter landing site (HLS) are demonstrated, as required
- 4 Fly between operational and application areas**
- 4.1** Low-level navigation techniques from an operational area to an application area are used as required
- 4.2** Most appropriate routes and heights between operational and application areas with considerations to terrain, stock, populated areas, housing and hazards are selected
- 4.3** Operations at a certified or registered aerodrome are conducted as required
- 4.4** Aerial application operations are performed in accordance with published regulations requirements

- 5 Conduct an aerial survey**
- 5.1** Appropriate aerial survey plans are developed for conducting safe aerial application operations
 - 5.2** Operating area boundaries are established and environmentally sensitive areas identified, including areas that are noise sensitive, biologically susceptible, populated and urban, and restricted or dangerous
 - 5.3** Potential emergency or alternate landing areas are identified and/or established for contingency operations
 - 5.4** Environmental hazard factors affecting aerial application operations are considered
 - 5.5** Wind velocity and direction are assessed for effect on operations
 - 5.6** Application management plans are amended or modified based on aerial survey assessment results as required
- 6 Operate within the vicinity of power lines**
- 6.1** Power lines within and outside the treatment area during an aerial survey are identified
 - 6.2** Power line infrastructure cues are interpreted to aid wire run identification
 - 6.3** Wire heights are accurately assessed to support safe operations in vicinity of power lines, including safe flying parallel to wires
 - 6.4** Other hazards relevant to operations near power lines, such as pole stays, crop height, fences or machinery that may pose a risk, are identified and managed
 - 6.5** Safe command decision whether to fly over or under a wire is made
 - 6.6** Aerial application operations over wires, including adequate safety buffers for pull-up and let down and accurate cut-off and on-off application equipment, are conducted
 - 6.7** Aerial application operations under wires, including assessment of safe clearance distances, are conducted
 - 6.8** Application approaches towards power lines when passage beneath is unachievable are terminated safely
 - 6.9** Human factors that may affect operations near power lines, particularly distraction, short-term memory

- limitations and inattention (perceptual) blindness, are applied during aerial application operations
- 7 Apply substances through aerial application**
- 7.1** Substances are applied safely in accordance with the application management plan
- 7.2** Correct application height relevant to terrain, application type and meteorological conditions is established and maintained
- 7.3** Appropriate airspeed and flight profile are controlled on entry or re-entry to operational areas
- 7.4** Aerial application equipment is operated within scope of the application management plan
- 7.5** Hazard areas are manoeuvred around with adequate safety margins during application operations
- 7.6** Aircraft smoke dispersal equipment is routinely utilised to establish accurate wind velocity and direction
- 7.7** Application flow rates, pressure and product quantities are monitored during application operations
- 7.8** Decisions to suspend or continue safe aerial application operations are taken based on planned or actual operating conditions
- 7.9** Clean up operations and hazard safety checks are conducted on completion of aerial application
- 8 Conduct GNSS swath guidance equipment operations**
- 8.1** GNSS familiarity is applied to the appropriate level of operational requirement
- 8.2** Sound judgement is applied during application treatment area pattern selection
- 8.3** Correct swath relevant to aircraft, configuration and substance to be applied is selected
- 8.4** AB line and C point is accurately placed as required
- 8.5** Aircraft is accurately manoeuvred on correct swath line with reference to light bar and natural features
- 8.6** Aircraft is operated at maximum permissible weights for aerial application operations in accordance with

manufacturer and regulatory requirements

8.7 Aircraft take-off weight is determined within requirements relevant to strip length and operating conditions

8.8 Aircraft is operated safely and effectively at maximum weights during all phases of flight, including taxi, take off and climb, approach and landing, application, turns and obstacle avoidance manoeuvres

9 Jettison a load

9.1 Full liquid load is jettisoned during take-off and control of aircraft is maintained

9.2 Full liquid load is jettisoned during flight and aircraft pitch, roll, yaw and speed changes are controlled

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 AVIY0007 Conduct aerial application operations.

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 AVIY0039 Conduct aerial application operations

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:

- applying relevant aeronautical knowledge
- applying short field/strip landing and take-off techniques
- assessing airstrip/aerodrome suitability, including:
 - approach and landing direction
 - airstrip/aerodrome hazards
 - meteorological conditions
 - operational length
 - surface condition and restrictions
- assessing and checking aircraft and role equipment for flight serviceability
- assessing identified environmental hazard factors
- assessing own fitness for flight and planned operations
- assessing relevant wind velocity and direction
- compiling applicable maintenance documentation
- conducting pre-flight operational planning
- determining aircraft take-off weights relevant to strip length and operational conditions
- determining landing area suitability for normal and contingency operations
- determining relevant aircraft type suitability
- developing, amending and modifying application management plans
- establishing and implementing safe operating condition margins during aerial application operations
- establishing operational fuel requirements for normal and contingency operations
- flying aircraft to/from aerial application operating areas
- identifying aerial application hazards
- identifying logistical considerations for application management plan, including:
 - airstrip/aerodrome status
 - air traffic service requirements
 - ground support requirements
 - personal supplies and life support
- identifying potential contingency and alternate landing areas

- jettisoning full liquid load and maintaining aircraft control, including:
 - during take-off prior to lift-off
 - immediately after take-off
 - during flight and control pitch change to maintain altitude (+100/-0 ft) by adjustments of elevator and power
- reading, interpreting and following relevant regulations, instructions, procedures, information and signs
- setting local or area barometric pressure adjusted for sea level (QNH) at appropriate stages of flight.

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:

- aerial application human factors, including:
 - heat stress and dehydration
 - in-flight distractions
 - maintaining situational awareness
 - mental and physical fatigue
- aerial application role equipment
- aircraft configuration and flight characteristics for the aircraft being flown during maximum weight flight and load jettison operations
- aircraft flight manual, performance, engine and systems
- applicable regulations that relate to conducting a safe aerial application operation
- aviation risk and fatigue risk management processes
- Civil Aviation Safety Regulation (CASR) Part 61 Manual of Standards (MOS) Schedule 3 Aeronautical Knowledge relevant to aerial application operations
- Civil Aviation Safety Authority (CASA) exemptions with regards to maximum take-off weight and applicability of other aircraft limitations
- factors to be considered when determining payload weights for aerial application
- flight control and throttle actions required to maintain control of aircraft being flown when jettisoning a full load
- global navigation satellite system (GNSS) equipment and operator procedures
- low-level flight safety hazards and risks
- meteorological factors affecting aircraft flight performance during low-level flight
- relevant aerodynamics and aircraft performance
- terrain following techniques.

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 personal protective equipment (PPE) currently used in industry.

Links

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