



Australian Government

AVIY3071A Manage remote pilot aircraft systems (RPAS) in abnormal flight conditions

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit involves the skills and knowledge required to accurately assess an abnormal situation and perform immediate actions, configure the remote pilot aircraft (RPA), select an emergency landing area and land with no injury to personnel or damage to the aircraft or property. Abnormal situations may include engine failure at launch or during flight; a stall; an incipient or full spin; a forced landing; or other abnormal operational situations involving equipment, instruments, control, airframe, fire or other emergencies. Licensing, legislative, regulatory or certification requirements are applicable to this 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 relevant to managing abnormal aircraft flight situations.

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

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

Work is performed under limited supervision.

Note:

Where an abnormal situation might potentially cause damage to the aircraft and/or be harmful to personnel, evidence for assessment purposes should be obtained from other than observation of performance in an actual abnormal operational situation (e.g. through using an appropriate simulator and/or structured questioning, or termination of a simulated forced landing at a point where the assessment of an outcome can be made).

Licensing/Regulatory Information

Remote Pilot Licence (RPL) Basic – Level 1

Pre-Requisites

Not applicable.

Employability Skills Information

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

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| 1 Manage engine failure after take-off | 1.1 (In simulated conditions) Control of aircraft is maintained |
| | 1.2 Immediate actions are performed in accordance with Flight Manual/Pilot's Operating Handbook (POH) |
| | 1.3 A landing area within gliding distance is selected, and emergency procedures are performed in accordance with Flight Manual/POH |
| | 1.4 Flight profile is flown from which a controlled landing could be achieved |
| | 1.5 ATS or other agencies capable of providing assistance are advised of situation and intentions |
| 2 Perform forced landing following engine failure | 2.1 (In simulated conditions) Control of aircraft is maintained |
| | 2.2 Immediate actions are performed in accordance with Flight Manual/POH |
| | 2.3 A landing area within gliding distance is selected and aircraft is manoeuvred to nominated landing area |
| | 2.4 Consideration is given to restarting the engine when appropriate |
| | 2.5 Flight profile is flown from which a controlled landing could be achieved |
| | 2.6 ATS or other agencies capable of providing assistance are advised of situation and intentions |

- 3 Recognise and recover from stall
 - 3.1 Stall signs and symptoms are recognised
 - 3.2 Aircraft attitude and power settings are adjusted to resume normal balanced flight on advent of stall in accordance with established aviation practice
 - 3.3 Height loss is consistent with aircraft type
- 4 Recognise and recover from an incipient spin
 - 4.1 Incipient spin signs and symptoms are recognised
 - 4.2 Recovery at incipient spin stage (stall with wing drop) is performed and controlled flight is resumed in accordance with established aviation practice
 - 4.3 Recovery at incipient spin stage during a turn is performed and controlled flight is resumed
- 5 Conduct precautionary search and landing
 - 5.1 Intentions are communicated to other traffic or agencies when appropriate
 - 5.2 Aircraft is configured for inspection flight profile
 - 5.3 Landing area is selected and inspected for approach, landing distance, surface, and obstacle clearance to ensure aircraft could be landed safely
- 6 Manage on-board abnormal and emergency situations
 - 6.1 (In simulated conditions) Control of aircraft is maintained
 - 6.2 Abnormal and emergency situations are identified, and managed in accordance with relevant emergency procedures and regulatory requirements
 - 6.3 Appropriate emergency procedures are followed in accordance with Flight Manual/POH and published procedures while maintaining control of the aircraft

Required Skills and Knowledge

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

Required knowledge:

- Relevant sections of Civil Aviation Regulations and Orders pertaining to abnormal flight situations
- In Defence context, relevant Defence Orders and Instructions
- Relevant OH&S and environmental procedures and regulations
- Principles of aerodynamics
- Functions and effects of all aircraft controls
- Controllability checks and external inspection procedures
- Engine failure emergency procedures
- Explain the effects of a partial engine failure on aircraft performance with respect to straight and level flight and turning while maintaining level flight
- Describe the hazards associated with turning an aircraft at slow speed using large angles of bank while maintaining level flight following a partial engine failure after take-off
- Explain what factors should be considered when deciding whether to land immediately or proceed to a more suitable landing area after a partial engine failure
- Practical action plans for use in the event of an engine failure after take-off
- A plan of action to be used in the event of an engine failure in flight, other than after take-off
- Factors affecting a stall
- Symptoms of the approach to the stall and the stall
- Causes of stalling
- Recovery techniques
- The potential dangers of unbalanced flight at slow speed
- Actions required to recover from an incipient spin (wing drop at point of stall)
- Action required to recover from a stall during a turn
- Spin entry and recovery techniques
- The difference between a spin and spiral dive
- Symmetrical and rolling g limitations
- Procedures to be followed to recover from a stall
- Procedures to be followed to recover from an incipient spin
- Height loss whilst gliding including minimum height to achieve safe turns towards selected landing area
- Action planning processes
- All applicable checklist items
- Emergency radio procedures
- Actions to be conducted following a forced landing

- Poor visibility configuration
- Hazards associated with flying operations at low level
- Ditching procedures when specified in the Flight Manual/Pilot's Operating Handbook (POH) or company operations manual

Required skills:

- Operate the aircraft within its limitations, achieving optimum performance
- Compensate for the secondary effects of controls
- Identify symptoms of incipient and developed stalls
- Recognise situations which may require a precautionary landing
- Perform various functions simultaneously as required
- Ensure compliance with relevant emergency procedures and regulatory requirements
- Select and use relevant equipment in abnormal aircraft flight situations
- Use instruments to monitor aircraft performance
- Communicate effectively with others when managing abnormal aircraft flight situations including radio use
- Read and interpret instructions, regulations, procedures and other information relevant to managing abnormal aircraft flight situations
- Interpret and follow operational instructions and prioritise workload
- Complete documentation related to abnormal aircraft flight situations
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when managing abnormal aircraft flight situations
- 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 managing abnormal aircraft flight situations in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events that may arise when managing abnormal aircraft flight situations
- Apply precautions and required action to minimise, control or eliminate hazards that may exist during abnormal aircraft flight situations
- 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 to manage abnormal aircraft flight situations

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

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

- Tasks may be undertaken in:
- variable weather conditions in accordance with Day Visual Flight Rules
- Performance may be demonstrated in:
- single engine aircraft
 - multi engine aircraft
 - synthetic training device approved by appropriate authority
 - variable air traffic conditions
 - variable flight situations
 - abnormal situations
- Performance may be demonstrated on an aircraft with:
- fully functioning dual controls
 - an electronic intercom system
 - (if propeller-driven) a constant speed propeller
- Aircraft may include:
- Remotely Piloted Aircraft (RPA)/Unmanned aircraft
- Crew may include:
- Remote Pilot
 - Observer
- Instruments may be:
- fitted flight instruments
 - head up displays
- Limitations may be imposed by:
- local noise abatement requirements and curfews
- Classes of airspace must be:
- in Class G airspace as designated by the regulator, and may be in:
 - restricted and danger areas
 - military control zones
- Abnormal conditions may include:
- engine failure at take-off
 - engine failure during flight
 - stall
 - incipient spin
 - forced landing
 - onboard abnormal operational situations involving equipment, instruments, control, airframe, fire or other on-board emergency
- Simulated emergency evacuation environments may include:
- in-flight
 - on land
 - in water
- Runways may include:
- sealed
 - gravel
 - grass
- Dependent on the type of
- company procedures

- organisation concerned and the local terminology used, workplace procedures may include:
- enterprise procedures
 - organisational procedures
 - established procedures
 - standard operating procedures
- Information/documents may include:
- relevant sections of Civil Aviation Safety Regulations and Civil Aviation Orders pertaining to the various abnormal flight situations including Day Visual Flight Rules (Day VFR)
 - in ADF context, relevant Defence Orders and Instructions
 - Flight Manual/Pilot's Operating Handbook (POH)
 - Manual of Standards
 - Aeronautical Information Publication (AIP)
 - En Route Supplement Australia (ERSA)
 - charts
 - operations manuals
 - approved checklists
 - emergency procedures
 - 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 legislation may include:
- relevant Civil Aviation Safety Regulations and Civil Aviation Orders
 - in ADF context, relevant Defence Orders and Instructions
 - relevant state/territory OH&S legislation
 - relevant state/territory environmental protection legislation
 - relevant Australian Standards
- Performance includes tolerances specified in either of:
- relevant licence and aircraft rating requirements of the Civil Aviation Safety Authority (CASA) such as:
 - Manual of Standards
 - relevant Defence documentation such as:
 - Defence Orders and Instructions

Unit Sector(s)

Not applicable.

Competency field

Y - Aircraft Operation and Traffic Management