



Australian Government

AVIF3021A Manage human factors in remote pilot aircraft systems (RPAS) operations

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit involves the skills, knowledge and attitudes required to manage human factors in a remote pilot aircraft (RPA) mission, including monitoring own performance, recognising errors and managing corrective action, and managing own physiological and psychological condition. 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 remote pilot aircraft (RPA) rating requirements of the Civil Aviation Safety Authority (CASA) and/or ADF; airspace control requirements and Day Visual Mission Rules (Day VFR); Instrument Mission Rules (IFR); and RPA control principles, regulations, safety codes, protocols and procedures relevant when managing human factors in RPA mission.

Work involves the management of human factors before and during an RPA mission as part of commercial and military RPA 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.

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 personal performance | <ul style="list-style-type: none">1.1 Pre- and post-mission personal condition is managed to ensure safe outcome of operation1.2 Own performance is monitored against workplace standards, procedures and requirements1.3 Degradation of personal condition and/or limitations are recognised and appropriate strategies are implemented to ensure the safe outcome of a mission |
| 2 Recognise threats and errors, and manage preventative and corrective action | <ul style="list-style-type: none">2.1 Relevant environmental or operational threats that are likely to affect the safety of the mission are identified2.2 Countermeasures to manage threats are developed and implemented2.3 Mission progress is monitored and assessed to ensure a safe outcome, or actions are modified when a safe outcome is not assured2.4 Checklists and standard operating procedures are applied to prevent RPA handling, procedural or communication errors; and committed errors are identified before safety is affected or RPA enters an undesired operational state2.5 RPA systems, mission environment and crew members are monitored, and information is collected and analysed to identify potential or actual errors2.6 Countermeasures are implemented to prevent errors, or action is taken in the time available to correct errors before the RPA enters an undesired operational state |

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 Safety Regulations and Civil Aviation Orders
- In Defence context, relevant Defence Orders and Instructions
- Relevant OH&S procedures and regulations
- Human factors that may influence remote aircraft pilot performance during a mission
- Potential errors that may occur during a mission and procedures for taking appropriate preventative and corrective action
- Strategies for management of fatigue
- Aspects of lifestyle that may adversely influence a remote pilot's physiological/psychological condition and/or fatigue during a mission
- The adverse effects of alcohol and prescription and non prescription drugs and regulation concerning alcohol and drug use by remote pilots
- Effects of stress on remote pilot performance and ways of managing and controlling the various stressors that may impact on a remote pilot
- Explain how the use of checklists and standard procedures prevents errors
- Explain how prioritising and managing workload can reduce the commission of errors
- Requirements for reporting and documenting any safety incidents and safety critical errors that may have occurred during a mission
- An understanding of principles of threat and error management
- Recognition of undesired RPA states

Required skills:

- Recognise threats and errors and take appropriate corrective action to avoid an undesired RPA state
- Manage own physiological and psychological condition
- Manage and control stress before and during a mission
- Maintain compliance with relevant regulatory requirements including the avoidance of alcohol and drugs before and during a mission
- Monitor own performance before and during a mission
- Set priorities and manage workload to ensure safe task completion in the time available
- Manage aspects of lifestyle that may impact upon remote pilot performance
- Recognise signs of fatigue and apply appropriate fatigue management techniques
- Identify symptoms of deterioration in physiological/psychological condition and recognise signs of error that might endanger the safety of a mission and take appropriate corrective action
- Apply relevant air safety practices and regulations
- Communicate effectively with others when managing human factors in RPA mission

- Interpret and follow operational instructions and prioritise work
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when managing human factors in RPA mission
- 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 human factors in RPA mission in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events that may arise when managing human factors in RPA mission
- Apply precautions and required action to minimise, control or eliminate hazards that may exist during the management of human factors in RPA mission
- 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 human factors in RPA mission

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.

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| Tasks must be undertaken in: | <ul style="list-style-type: none">• within visual line of sight in accordance with Day Visual Mission Rules |
| Performance may be demonstrated in: | <ul style="list-style-type: none">• single engine RPA• multi engine RPA• synthetic training device approved by the appropriate authority• but must be in Class G airspace as designated by the Civil Aviation Safety Authority |
| Aircraft may include: | <ul style="list-style-type: none">• Remotely Piloted Aircraft (RPA)/Unmanned aircraft |
| Crew may include: | <ul style="list-style-type: none">• Remote Pilot• Observers |
| Instruments may be: | <ul style="list-style-type: none">• fitted mission instruments• head up displays |
| Limitations may be imposed by: | <ul style="list-style-type: none">• local noise abatement requirements and curfews• airspace endorsements |
| Classes of airspace may be: | <ul style="list-style-type: none">• as designated by the regulator |
| Deterioration of physiological condition may result from such causes as: | <ul style="list-style-type: none">• physical illness• injury• disease• fatigue |
| Deterioration of psychological condition may result from such causes as: | <ul style="list-style-type: none">• grief• trauma• interpersonal conflict• overwork• anxiety• uncontrolled stress• secondary effects of illness, disease or injury |
| Causes of stress may include: | <ul style="list-style-type: none">• emergency situations• poor planning and prioritisation of tasks• interpersonal conflict• fear and anxiety• lack of sufficient knowledge to adequately manage mission tasks and contingencies• inability to carry out simultaneous multiple tasks• time pressures• unfamiliar environments/situations |

Types of errors may include:	• illness • stalling of small RPA • abnormal recovery/landing • misinterpretation of communications • non compliance with instructions
Dependent on the type of organisation concerned and the local terminology used, workplace procedures may include:	• company procedures • enterprise procedures • organisational procedures • established procedures
Information/documents may include:	• relevant sections of Civil Aviation Safety Regulations and Civil Aviation Orders pertaining to human factors and their effect on remote pilot performance • Civil Aviation Safety Regulations concerning limitations on drug and alcohol use by remote pilots • in Defence context, relevant Defence Orders and Instructions • Manual of Standards • Flight Manual • operations manuals • approved checklists • 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 pertaining to human factors and their effect on remote pilot performance • in Defence context, relevant Defence Orders and Instructions • relevant state/territory OH&S legislation • relevant regulations limiting the use of drugs and alcohol by remote pilots • relevant Australian Standards
Performance includes tolerances specified in either of:	• relevant licence and small RPA rating requirements of the Civil Aviation Safety Authority (CASA) such as: • Manual of Standards • relevant Defence documentation such as: • Defence Orders and Instructions • approved curricula and training documentation

Unit Sector(s)

Not applicable.

Competency field

F - Safety Management