



**Australian Government**

# **AVIW0046 Conduct aerial search using remotely piloted aircraft**

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## Modification History

| Release | Comments                                                                                  |
|---------|-------------------------------------------------------------------------------------------|
| 1       | This unit of competency was first released in AVI Aviation Training Package Release 12.0. |

## Application

This unit involves the skills and knowledge required to conduct aerial search and rescue (SAR) using remotely piloted aircraft (RPA) in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority and national operating standards.

It includes preparing for search operations, conducting aerial search operations and reviewing search operations.

This unit incorporates aviation non-technical skill requirements (mental, social and personal-management abilities) related to safety management duties of flight operations personnel 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 as a single operator or within a team environment.

## Licensing/Regulatory Information

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

## Pre-requisite unit(s)

No pre-requisite units

## Competency field(s)

W - Equipment and Systems Operations

## Unit sector(s)

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. |                                                                                                                     |
|-------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                  | <b>Prepare for search operation</b>    | <b>1.1</b>                                                                                      | Obtain mission briefing and SAR tasking information from relevant personnel                                         |
|                                           |                                        | <b>1.2</b>                                                                                      | Confirm RPAS operational limitations, regulatory approvals and airspace access                                      |
|                                           |                                        | <b>1.3</b>                                                                                      | Determine transit routes to and from search area, accounting for terrain, weather and endurance                     |
|                                           |                                        | <b>1.4</b>                                                                                      | Select and configure appropriate search patterns for mission type and search object                                 |
|                                           |                                        | <b>1.5</b>                                                                                      | Calibrate and test payload sensors and confirm operational status                                                   |
|                                           |                                        | <b>1.6</b>                                                                                      | Conduct pre-flight checks on RPAS, communications, and supporting equipment in accordance with workplace procedures |
| <b>2</b>                                  | <b>Conduct aerial search operation</b> | <b>2.1</b>                                                                                      | Monitor mission parameters including flight times, endurance and probability of detection                           |
|                                           |                                        | <b>2.2</b>                                                                                      | Execute search plan using designated search patterns and RPAS capabilities                                          |
|                                           |                                        | <b>2.3</b>                                                                                      | Manage payload sensors to maximise detectability of search objects in varied conditions                             |
|                                           |                                        | <b>2.4</b>                                                                                      | Communicate systematically with Mission Coordinator/Supervisor relaying imagery, updates and position reports       |
|                                           |                                        | <b>2.5</b>                                                                                      | Adapt to dynamic re-tasking, changes in weather or mission priorities while maintaining operational safety          |
|                                           |                                        | <b>2.6</b>                                                                                      | Apply crew resource management principles to coordinate pilot, payload operator, and visual observers               |
|                                           |                                        | <b>2.7</b>                                                                                      | Report and escalate critical sightings or mission events using standard SAR phraseology and protocols               |
| <b>3</b>                                  | <b>Review search operation</b>         | <b>3.1</b>                                                                                      | Debrief with SAR authority and operational team, providing full account of RPAS activities                          |
|                                           |                                        | <b>3.2</b>                                                                                      | Archive and provide sensor data, imagery and logs according to evidentiary and operational requirements             |

|  |  |            |                                                                                                                             |
|--|--|------------|-----------------------------------------------------------------------------------------------------------------------------|
|  |  | <b>3.3</b> | Complete SAR documentation including abnormal or emergency occurrences                                                      |
|  |  | <b>3.4</b> | Identify improvement opportunities, including operational performance, sensor effectiveness and human factor considerations |

## Range of conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Refer to the AVI Aviation Companion Volume Implementation Guide for non-essential items for this unit of competency.

# **Assessment Requirements for AVIW0046 Conduct aerial search using remotely piloted aircraft**

## **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 crew resource management in a multi-crew RPAS operation
- capturing, archiving and transferring mission data to SAR authority
- checking operating equipment for faults according to workplace procedures
- communicating clearly and concisely to relevant personnel using standard and non-standard phrases
- conducting search using at least two different search patterns
- detecting and reporting a target or simulated search object in real or simulated environment
- managing mission-critical timings, endurance and airspace considerations
- preparing RPAS and payload sensors for SAR operation
- responding appropriately to unexpected mission changes or in-flight emergencies
- responding to and updating checklists
- using emergency messages, phrases and signals

## **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:

- accuracy of the distress position
- communication protocols, SARWATCH/SARTIME and emergency phraseology
- data handling, privacy and evidentiary requirements for SAR imagery
- distance between search area and the base
- documentation for providing search and rescue (SAR) alerting and emergency response, including recording emergency and/or abnormal flight related information
- en-route and on-scene weather
- factors affecting the choice of search pattern
- human factors in SAR operations including stress, fatigue, decision-making under pressure
- ICAO Annex 12 SAR principles and national SAR frameworks

- in-flight emergency response (IFER) procedures and abnormal operations in SAR environment
- IFER documentation
- limitations of time
- number and type of search units available
- payload sensor theory and detectability limitations
- relevant and environmental procedures and regulations
- RPAS operational requirements under national regulations
- SAR mission command structures including Mission Coordinator and On-Scene Coordinator
- SAR organisations and authorities
- search pattern types including parallel track, creeping line, expanding square, sector search and contour
- search theory, including probability of detection and factors affecting visibility
- size and detectability of the search object
- size and shape of the search area
- terrain and the area where the search will be conducted
- types of in-flight emergencies
- types of search patterns and their operational applications
- use of checklists and other documentation.

## 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 it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate 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
- applicable documentation, including workplace procedures, regulations, codes of practice and operation manuals

- relevant materials, tools, equipment and PPE currently used in industry.

## Mandatory Workplace Requirements

Assessment of performance evidence may be in a workplace setting or an environment that accurately represents a real workplace.

## Unit Mapping Information

| Previous Code and Title                                      | Equivalence    | Comments |
|--------------------------------------------------------------|----------------|----------|
| AVIW0008 Conduct aerial search using remote piloted aircraft | Not equivalent |          |

## Links

Companion volumes, including implementation guides, are found on the national training register - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=4725260a-0af3-4daf-912b-ef1c2f3e5816>.