



Australian Government

**AVIY0096 Apply basic aeronautical
knowledge for remotely piloted aircraft
systems**

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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 follow basic aeronautical knowledge for remotely piloted aircraft systems (RPAS), in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) and national operating standards.

It includes understanding terminology of flight and wind; converting and expressing time; using units of measurement for aviation; calculating energy and understanding the impact of aerodynamics, weight and balance. It also includes determining the changes of lift and drag; selecting and using propellers or rotors; using flight control principles of operation and using remote pilot stations.

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)

Y - Aircraft Operation and Traffic Management

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.	
1	Demonstrate understanding of terminology of flight and wind	1.1	Determine the effects of wind velocity and adverse environmental conditions and determine contingency actions
		1.2	Describe the differences between a 3-figure group, clock code and compass cardinal and ordinal points
		1.3	Explain the difference between aircraft heading and track
		1.4	Calculate the relationship between true and magnetic headings
2	Convert and express time	2.1	Express time as a 2, 4, 6, 8, 10 figure group
		2.2	Convert between local time and universal time coordinate
3	Use units of measurement for aviation	3.1	Calculate height, elevation and altitude for proposed operations
		3.2	State measurements in the appropriate units used for aviation activities
		3.3	Conduct conversions between different units of measurements
4	Calculate energy	4.1	Understand the different types of aircraft energy including potential, kinetic and inertia
		4.2	Calculate energy requirements for operation
5	Demonstrate understanding of impact of aerodynamics, weight and balance	5.1	Identify and consider load planning factors when calculating aircraft performance and load
		5.2	Describe how the relevant laws of physics impact aerodynamics

		5.3	Assess aircraft weight and balance and adjust for flight, as required
		5.4	Load and unload RPA during an operation
		5.5	Identify dangerous goods and apply workplace procedures during an operation
6	Determine changes of lift and drag	6.1	Determine changes to lift and drag resulting from airspeed and angle of attack changes
		6.2	Understand the differences in the types of drag
7	Select and use propellers or rotors	7.1	Select propellers or rotors suitable for the RPA type and model
		7.2	Install propellers or rotors correctly as per the manufacturer guidelines
8	Use flight control principles of operation	8.1	Determine the effect of changes in power, on vertical and horizontal speeds
		8.2	Describe the relationship between control inputs and aircraft movements
9	Use remote pilot stations	9.1	Organise remote pilot station and access essential information
		9.2	Utilise RPAS automation to manage control station workload
		9.3	Identify the features of a remote pilot station

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 AVIY0096 Apply basic aeronautical knowledge for remotely piloted aircraft systems

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all requirements of the elements and performance criteria on at least one occasion and includes:

- calculating energy requirements for RPAS operations including carrying a payload
- calculating energy source allowances, consumption and endurance
- converting units of measurements for aeronautics
- determining area wind velocity
- expressing direction of flight in alternate ways
- identifying dangerous goods to be transported by RPA and applying the appropriate safety requirements
- identifying the features of a remote pilot station
- explaining the differences between lift and drag
- managing operation of RPAS energy source systems
- monitoring energy source usage to achieve desired profile, range or endurance following configuration changes
- selecting and using relevant controls
- selecting and using the appropriate propellers or rotors for operations
- understanding the effects of environmental conditions
- using remote pilot stations.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- aerodynamics, weight and balance terminology
- aeronautical units of measurement
- aircraft energy
- basic weight and balance principles
- conversions between different units of measurement
- coordinated universal time (UTC)
- dangerous goods procedures
- differences between aircraft heading and track

- differences between height, altitude and elevation
- differences between types of payload
- direction of flight terminology
- features of remote pilot station
- flight control principles of operation
- lift and drag changes resulting from:
 - airspeed changes
 - angle of attack changes
- local and standard time conversions to and from UTC time
- propellers and rotors including:
 - blade angle, helix angle or pitch
 - principles
 - terminology
 - thrust and torque
- relationship between true and magnetic heading
- time expressed as a 2, 4, 6, 8, 10 figure group
- types of drag
- wind velocity and the effect it could have on take-off, landing and energy consumption.

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
	Newly created	This unit has been created to address a skill or task required by industry that is not covered by an existing unit of competency

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>.