



Australian Government

AVIY0099 Operate fixed wing 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 operate fixed wing remotely piloted aircraft systems (RPAS) operations, in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) and national operating standards.

It includes identifying components of an RPA; determining impacts of weight and balance; determining impacts on aerodynamics and understanding principles of operation of a RPA. It also includes launching and landing a fixed wing RPA safely.

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
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Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	Identify components of a fixed wing RPA	1.1	Identify and locate typical components on a fixed wing RPA
		1.2	Identify and locate electrical components of a fixed wing RPA
2	Determine impacts of weight and balance	2.1	Identify impacts of changes to weight and balance on launching, landing and recovery of RPA
		2.2	Identify the causes of changes to performance of RPA
3	Determine impacts on aerodynamics for the stages of flight	3.1	Identify the effects of aerodynamic during take off and landing
		3.2	Identify effects of aerodynamics during cruise and loiter
4	Demonstrate understanding of principles of operation	4.1	Use flight controls on RPA and demonstrate the effect on movement
		4.2	Demonstrate various manoeuvres whilst in control of an RPA
5	Launch, cruise and land fixed wing RPA	5.1	Complete pre-launch checks on RPA
		5.2	Launch RPA and demonstrate the effect on climb rate during various environmental conditions
		5.3	Turn and operate RPA while maintaining control
		5.4	Loiter RPA according to manufacturer instructions
		5.5	Demonstrate the effect on descent during various environmental conditions
		5.6	Land RPA safely according to workplace procedures and relevant regulations

		5.7	Complete post-flight actions on RPA according to workplace procedures
6	Manage fixed wing RPA during abnormal and emergency procedures	6.1	Identify, diagnose and communicate abnormal or emergency situations
		6.2	Maintain control of RPA at all times
		6.3	Implement RPA abnormal or emergency checklist procedures to maintain safety of flight
		6.4	Decide, implement, evaluate and revise a course of action to achieve the safest outcomes
		6.5	Explain location and operation of emergency systems applicable to RPA

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.

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

Assessment Requirements for AVIY0099 Operate fixed wing remotely piloted aircraft systems

Performance Evidence

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

- conducting a missed approach while:
 - recognising the conditions when a missed approach should be executed
 - making the decision to execute a missed approach in a timely way
 - performing a missed approach and repositioning for landing
- demonstrating accurate control and navigation within visual line of sight, at a reasonable distance sufficient to show competency in such control and navigation
- descending the RPA at a constant angle of descent
- descending the RPA at a constant rate of descent
- entering and recovering from stall (if applicable to the RPA) while:
 - controlling the RPA by applying the required power and pitch, roll and yaw inputs as appropriate in a smooth, coordinated manner to recover from manoeuvres:
 - performing stall recovery
 - performing pre-manoeuve checks for stalling the RPA
 - recognising stall signs and symptoms
- identifying and avoiding terrain and traffic when operating the RPA
- managing loss of thrust at launch
- operating the RPA at a constant angle of climb
- operating the RPA at a constant rate of climb
- operating the RPA in straight and level flight at the desired altitude
- operating the RPA to demonstrate a figure of 8, without loss of height and with the crossover point in front of the operator
- operating the RPA to demonstrate the loss of link procedures
- operating the RPA to perform turns
- performing a hand launching of the RPA
- performing a horizontal rectangular circuit of a reasonable width, within visual line of sight, and at a reasonable distance, sufficient to show competency in carrying out such a manoeuvre

- performing simulated emergency manoeuvres with the RPA to avoid a collision with another aircraft
- performing a straight, forward sideslip by:
 - adjusting the rate of descent by coordinating the angle of bank and applied rudder
 - inducing slip to achieve increased rate of descent while maintaining track and airspeed; and
- performing the launch of an RPA whilst:
 - demonstrating correct launch techniques
 - demonstrating smooth application of power and a controlled initial climb
 - performing the post-launch checks mentioned in the RPA checklist set out in operator's operations manual
- recovering from unusual aircraft attitudes
- recovering RPA while performing a rectangular circuit, of an appropriate length and width, while demonstrating positive control, followed by a straight-line approach to a nominated point and landing while:
 - achieving a smooth, positively-controlled transition from final approach to touchdown, including the following:
 - minimising ballooning during flare
 - touching down at a controlled rate of descent, in the specified touchdown zone
 - maintaining positive directional control and cross-wind correction after landing, where applicable
 - allowing sufficient space to align the RPA for a stabilised approach to the place at which the RPA will land or be recovered
 - maintaining a constant landing position aim point for the RPA
 - performing cross-wind landings
- recovering the RPA from a sideslip and returning it to controlled and balanced flight
- taxiing on the ground or water
- trimming the RPA to maintain the desired flight path for the flight
- using lift/drag devices appropriately during the descent of the RPA.

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:

- achieving a smooth landing

- advantages of landing into the wind
- advantages of launching into wind
- effects of a cross-wind on high- and low-wing aeroplanes during landing/recovery
- angle of descent and attitude relating to:
- aircraft nose position
 - flap
 - power
 - characteristics of a stall
- characteristics of an aerofoil
- concept of balanced turns
- deep stall landings
- differences between a flapless approach and an approach with flap in terms of:
 - approach path angle; and
 - landing distance required
 - threshold and touchdown speeds; and
- differences between a spin and a spiral dive
- effect of headwind and tailwind
- effect of increasing or decreasing bank angle on:
 - stall airspeed, including the rate of increase of stall speed with increasing bank
 - the aircraft's structure (load factor)
- effect on climb rate and angle resulting from changes in the following:
 - airspeed (changed from recommended)
 - altitude and density altitude
 - bank angle
 - flap deflection
 - headwind/tailwind component, windshear
 - power
 - weight
- effects of cross-wind on high- and low-wing aeroplanes during landing and recovery
- effects of cross-wind on high- and low-wing aeroplanes during launch and control technique
- effects of cross-wind on tail-wheel equipped aeroplanes and control techniques
- effects on stall airspeed

- manoeuvres during which the RPA may stall at an angle which appears to be different to the true stalling angle
- precautions during steep turns:
 - during a glide, particularly on approach to land and
 - shortly after launch
- RPA components including those found on the:
 - fuselage of the RPA
 - tail of the RPA
 - typical features of the wings of the RPA
 - undercarriage and recovery fittings of the RPA
- rate and angle of descent
- relationship between attitude, angle of attack and airspeed in level flight
- spiral dive recovery
- stall recovery:
 - effect of using ailerons when approaching, and during, the stall; and
 - why the RPA may stall at different speeds
- use of a recovery net
- visual illusions during level turns at low level when turning downwind or into wind
- visual signs from the ground when the RPA is approaching a stall.

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
AVIY0030 Operate fixed wing remote pilot aircraft systems	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>.