



Australian Government

AVIY0015 Perform an aerobatic sequence

Release: 1

AVIY0015 Perform an aerobatic sequence

Modification History

Release 1. This is the first release of this unit of competency in the AVI Aviation Training Package.

Application

This unit involves the skills and knowledge required to perform an aerobatic sequence, in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) and national operating standards.

It includes designing an aerobatic sequence, and performing aerobatic sequences above a specified safety height.

This unit addresses aviation technical skill requirements (physical, mental and task-management abilities) related to aircraft operational duties of flight crew, 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 within a single-pilot or multi-crew environment.

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

Use for Defence Aviation is to be in accordance with relevant Defence Orders, Instructions, Publications and Regulations.

Pre-requisite Unit

AVIY4061 Perform aerobatic manoeuvres

Competency Field

Y – Aircraft Operation and Traffic Management

Unit Sector

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 Design an aerobatic sequence

- 1.1 Performance parameters are identified based on physical limitations of pilot and structural limitations of aircraft
- 1.2 Sequence of aerobatic manoeuvres is designed that meets a specified requirement
- 1.3 Practical transitions are included between aerobatic manoeuvres
- 1.4 Performance parameters are identified based on a combination of aircraft attitude, power setting, altitude and speed that provide go-no-go guidance for safe completion of all manoeuvres above safety height

2 Perform aerobatic sequences above specified safety height

- 2.1 Specified sequences of manoeuvres are completed in accordance with aerobatics design
- 2.2 Performance parameters required for safe completion of a manoeuvre are achieved prior to commencement
- 2.3 Orientation with display axis is maintained
- 2.4 Energy potential of aircraft is managed to ensure completion of manoeuvres and sequences of manoeuvres within aircraft structure and minimum height limits
- 2.5 Failure to achieve performance parameters (energy requirement) to complete a manoeuvre is recognised and aircraft is managed to regain control above safety height
- 2.6 Height at or above a specified altitude is maintained

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.

Unit Mapping Information

This unit replaces but is not equivalent to AVIY4062A Perform an aerobatic sequence.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=4725260a-0af3-4daf-912b-ef1c2f3e5816>

Assessment Requirements for AVIY0015 Perform an aerobatic sequence

Modification History

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Performance Evidence

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

- achieving performance parameters required for safe completion of manoeuvres prior to commencement
- adapting to differences in equipment and operating environment in accordance with standard operating procedures
- applying precautions and required action to minimise, control or eliminate identified hazards
- applying relevant aeroplane aeronautical knowledge
- communicating effectively with others
- compensating for meteorological effects on display sequence
- compensating for the secondary effects of controls
- completing relevant documentation
- completing specified sequences of manoeuvres in accordance with aerobatic design
- following relevant legislation and workplace procedures
- identifying and correctly using equipment required to perform aerobatic sequence
- identifying symptoms of loss of control
- implementing contingency plans
- implementing work health and safety (WHS)/occupational health and safety (OHS) procedures and relevant regulations
- maintaining height at or above a specified altitude
- maintaining orientation with display axis
- managing energy potential of aircraft to ensure completion of manoeuvres and sequence of manoeuvres within aircraft structure and minimum height limits
- modifying activities depending on workplace contingencies, situations and environments
- monitoring and anticipating operational problems and hazards and taking appropriate action
- monitoring work activities in terms of planned schedule
- operating aircraft within its limitations, achieving optimum performance
- operating electronic communications equipment to required protocol
- performing aerobatic sequences above a specified safety height:
 - not below 3000 feet (ft) above ground level (AGL) (Flight Activity Endorsement 1)
 - not below 1500 ft AGL (Flight Activity Endorsement 2)

- not below 1000 ft AGL (Flight Activity Endorsement 3)
- not below 500 ft AGL (Flight Activity Endorsement 4)
- below 500 ft AGL (Flight Activity Endorsement 5)
- reading, interpreting and following relevant regulations, instructions, procedures, information and signs
- recognising approaching maximum performance limitations of aircraft
- recognising approaching minimum safe altitude
- recognising failure to achieve performance parameters to complete a manoeuvre, and managing aircraft to regain control above safety height
- recognising situations that may require a precautionary landing or abandonment
- reporting and/or rectifying identified problems promptly, in accordance with regulatory requirements and workplace procedures
- selecting and using relevant equipment during aerobatics sequence
- selecting and using required personal protective clothing and equipment conforming to industry and WHS/OHS standards
- setting local or area barometric pressure adjusted for sea level (QNH) at appropriate stages of flight
- using instruments to monitor aircraft performance
- working collaboratively with others
- working systematically with required attention to detail without injury to self, others or damage to goods or equipment.

Knowledge Evidence

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

- ‘g’ figure that a normal person may experience ‘g’ induced loss of consciousness (G-LOC)
- ‘g’ limitations for the aircraft being flown
- aerobatic sequence performance parameters
- aerodynamic principles applicable to performing an aerobatic sequence
- aircraft limitations for aircraft flown
- airspeed limitations
- CASR Part 61 Manual of Standards Schedule 3 Aeronautical Knowledge relevant to aeroplane aerobatic sequences
- conditions under which gravity induced loss of consciousness (G-LOC) is likely to occur
- differences between grey out, black out and G-LOC
- effect of aircraft weight on VA and what precautions must be taken
- effect of increased ‘g’ loading on stall speed
- effect of increasing airspeed on stick force
- energy management principles applicable to aerobatic sequences

- engine speed (RPM) limitations for the aircraft flown
- environmental factors impacting on performing an aerobatic sequence
- factors that can reduce G-LOC tolerances
- factors that lead to increased density altitude
- go/no-go performance criteria
- hazards and consequences of performing aerobatics with blocked Eustachian tubes
- how to calculate the rolling 'g' limitation of an aircraft
- human factors applicable to aerobatic flight:
 - physical fitness self-assessment
- in a Defence context, relevant Defence Orders and Instructions
- maximum rate turn criteria
- meaning of the term rolling 'g'
- meaning of the terms positive and negative 'g'
- minimum altitude to perform aerobatic manoeuvres
- minimum height required to recover from a spin in aircraft type being flown
- minimum height requirements to complete nose low (including pull through) to maintain above minimum height within aircraft normal operating parameters
- minimum radius criteria
- Mueller-Beggs emergency spin recovery technique
- physiological effects of positive and negative 'g'
- physiological effects of sustained and rapid changes of 'g' loading
- physiological factors that increase and reduce 'g' tolerance
- potential danger associated with conducting aerobatics at 500 ft AGL over unfamiliar terrain (Flight Activity Endorsement 4 only)
- potential danger associated with conducting aerobatics below 500 ft AGL over unfamiliar terrain (Flight Activity Endorsement 5 only)
- precautions that should be taken with regard to radius of turn when operating at a high-density altitude
- recovery technique to regain physiological and aircraft control from manoeuvre-induced disorientation
- regulatory requirements applicable to performing aerobatic sequences
- relationship between pre-stall buffet and rate of turn or rate of pitch
- relationship between tunnel vision and loss of consciousness
- relationship during rolling manoeuvres between pitch angle required on commencement of a roll and rate of roll
- relevant sections of Civil Aviation Safety Regulations and Civil Aviation Orders
- relevant WHS/OHS and environmental protection procedures and regulations
- rolling 'g' limitations for aircraft being flown
- structural irregularities that indicate an aircraft has been overstressed
- symmetrical positive and negative 'g' limits for aircraft being flown
- time period that disorientation may occur for, after recovery from G-LOC
- unusual attitude recovery techniques
- velocity speeds:

- manoeuvring speed (VA)
- velocity never exceed (VNE)
- normal operating range (VNO.).

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

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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.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- acceptable means of simulation assessment
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals
- relevant materials, tools, equipment and personal protective equipment currently used in industry.

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