



Australian Government

AVIY0018 Execute advanced aeroplane manoeuvres and procedures

Release: 1

AVIY0018 Execute advanced aeroplane manoeuvres and procedures

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 execute advanced aeroplane manoeuvres and procedures, in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority and national operating standards.

It includes turning the aeroplane steeply, sideslipping, and executing short take-off and landing procedures. It also includes entering and recovering from stall conditions, and recovering from an incipient spin.

This unit addresses aviation technical skill requirements (physical, mental and task-management abilities) related to aircraft operational duties of flight crew and ground 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 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

Not applicable.

Competency Field

Y – Aircraft Operation and Traffic Management

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Turn aeroplane steeply

- 1.1 Pre-manoeuve checks for steep turning are performed
- 1.2 Flightpath is cleared before and during turn
- 1.3 Steep level turn of nominated bank angle is achieved without altitude change to nominated heading
- 1.4 Descending turn of nominated bank angle is achieved to nominated heading
- 1.5 Awareness of higher stall speed in turns is applied
- 1.6 Aeroplane operating limits are not exceeded

2 Sideslip aeroplane

- 2.1 Yaw is induced to achieve increased rate of descent while maintaining track and airspeed
- 2.2 Recovery from sideslip is achieved and aeroplane is returned to balanced flight
- 2.3 Flightpath is cleared before and during manoeuvre
- 2.4 Glide speed is maintained

3 Execute short take off

- 3.1 Take-off performance is calculated in accordance with performance chart
- 3.2 Pre-take-off, line-up and after take-off checks are performed in accordance with approved checklist and regulatory requirements
- 3.3 Aeroplane is lined up to enable use of maximum runway length
- 3.4 Short take-off technique is applied in accordance with aircraft flight manual (AFM)/pilot's operating handbook (POH) requirements
- 3.5 Separation with other traffic is maintained
- 3.6 Appropriate allowance is made for surface and wind conditions

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| 4 Execute short landing | 4.1 Landing performance is calculated in accordance with performance chart |
| | 4.2 Aeroplane is landed at nominated touchdown point using appropriate techniques and procedures in accordance with AFM/POH requirements |
| | 4.3 Separation with other traffic is maintained |
| | 4.4 Appropriate allowance is made for surface and wind conditions |
| | 4.5 After landing checks are performed in accordance with approved checklist and regulatory requirements |
| 5 Enter and recover from stall | 5.1 Pre-manoeuve checks for stalling are performed |
| | 5.2 Stall signs and symptoms are recognised |
| | 5.3 Aeroplane is controlled by applying required pitch, roll and yaw inputs as appropriate in a smooth, coordinated manner, and aeroplane is accurately trimmed to enter and recover from stall conditions |
| | 5.4 Stall recovery in simulated partial and complete engine failure configurations is initiated and completed using established stall recovery techniques |
| 6 Recover from incipient spin | 6.1 Pre-manoeuve checks for an incipient spin are performed |
| | 6.2 Incipient spin signs and symptoms are recognised |
| | 6.3 Aeroplane is controlled during spin manoeuvres by applying required pitch, roll and yaw inputs as appropriate in a smooth, coordinated manner, to enter and recover from spin conditions during straight and level flight, climbing, and turning |
| | 6.4 Spin recovery is initiated and completed using established incipient spin recovery techniques |

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 and is not equivalent to AVIY4005B Execute advanced aeroplane manoeuvres and procedures.

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 AVIY0018 Execute advanced aeroplane manoeuvres and procedures

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 and performance criteria on at least one occasion and include:

- 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
- applying relevant legislation and workplace procedures
- communicating effectively with others when executing advanced aeroplane manoeuvres and procedures
- compensating for the secondary effects of controls
- completing relevant documentation
- conducting short take offs and landings
- conducting steep turns:
 - straight and level
 - descending
- entering and recovering from stall conditions:
 - incipient stall
 - stall with full power
 - stall without power applied
- stall during:
 - straight and level flight
 - climbing
 - descending
- approach to land configuration
 - turning
- identifying and correctly using relevant equipment
- implementing contingency plans
- implementing work health and safety (WHS)/occupational health and safety (OHS) procedures and relevant regulations
- interpreting and following operational instructions and prioritising workload
- maintaining compliance with regulatory requirements

- modifying activities depending on workplace contingencies, situations and environments
- monitoring and anticipating operational problems and hazards and taking appropriate action
- monitoring functions of fuel systems
- monitoring work activities in terms of planned schedule
- operating electronic communications equipment to required protocol
- performing pre-manoeuve checks in accordance with regulatory requirements and manufacturer procedures
- reading, interpreting and following relevant regulations, instructions, procedures, information and signs
- recognising flight situations that may require advanced manoeuvres and procedures, and applying the necessary techniques
- recognising single engine incipient spin conditions
- recovering from single engine incipient spins:
 - straight and level
 - climbing turning
- reporting and/or rectifying identified problems promptly, in accordance with regulatory requirements and workplace procedures
- selecting and using relevant equipment
- selecting and using required personal protective equipment conforming to industry and WHS/OHS standards
- sideslipping an aeroplane including:
 - straight sideslip
 - sideslipping turn
- recovery actions
- using instruments to monitor aeroplane performance
- working collaboratively with others
- working systematically with required attention to detail without injury to self or 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 and performance criteria and include knowledge of:

- aerodynamic and aeroplane operational considerations related to slow flight, sideslipping, stalling, spinning, steep turns, upset aeroplane states, including:
- symptoms of approach to stall and throughout the stall, manoeuvre until recovery
- relationship between angle of attack and stall
- effects of weight, 'g' force and angle of attack
- dangers of unbalanced flight
- principle of stick and control and the point of stall
- priority given to reduce angle of attack during stall manoeuvres
- loss of height in relation to available height and energy state
- technique of converting excess speed to height
- technique of converting excess height to speed
- symmetrical and rolling 'g' force limitations
- higher stall speeds when aeroplane is turning
- effects on fuel, pitot and flap systems
- application of pre-manoevre checks in accordance with regulatory requirements and manufacturers procedures
- CASR Part 61 Manual of Standards Schedule 3 Aeronautical Knowledge relevant to aeroplane operations
- contents of the aircraft flight manual (AFM)/pilot's operating handbook (POH)
- day visual flight rules (VFR) criteria
- effects of 'g' forces
- effects of a sideslip on aeroplane performance
- effects of maximum rate and minimum radius turns
- effects of sideslipping on aeroplane on fuel, pitot and flap systems
- environmental conditions that represent visual meteorological conditions (VMC)
- functions and effects of all aeroplane controls
- ground hazards associated with minimum ground roll operations
- hazards of unbalanced flight
- in a Defence context, relevant Defence Orders and Instructions
- increased induced drag during a steep turn
- increased stalling speed in a steep turn
- local and published noise abatement requirements and curfews
- operational circumstances where steep turns are required
- principles of aerodynamics
- procedures and techniques for short take-offs and landings
- procedures and techniques for sideslipping an aeroplane
- procedures and techniques for turning an aeroplane steeply
- procedures for recovering from stalls and spins
- procedures for short take-offs and landings
- recognising stall and incipient spin conditions
- relevant sections of aeronautical information package (AIP)
- relevant sections of Civil Aviation Safety Regulations and Orders

- relevant WHS/OHS and environmental procedures and regulations
- take-off and landing performance chart calculations
- windsock and other indicators used to determine wind velocity.

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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