



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **AVIY4003B Control aeroplane in normal flight**

**Revision Number: 1**

## AVIY4003B Control aeroplane in normal flight

### Modification History

Not applicable.

### Unit Descriptor

#### Unit Descriptor

This unit involves the skills and knowledge required to control an aeroplane in normal flight, including climbing an aeroplane, maintaining straight and level flight, descending an aeroplane, turning an aeroplane, controlling an aeroplane at slow speed, and performing circuits and approaches. Licensing, legislative, regulatory or certification requirements are applicable to this unit.

### Application of the Unit

#### Application of the Unit

Work must be carried out in compliance with the relevant licence and aircraft rating requirements of the Civil Aviation Safety Authority (CASA) and/or ADF; airspace control requirements and Day Visual Flight Rules (Day VFR); and aircraft control principles, regulations, safety codes, protocols and procedures relevant when controlling an aeroplane in normal flight.

Operations are conducted as part of commercial or military aircraft activities across a variety of operational contexts within the Australian aviation industry.

Use for ADF Aviation is to be in accordance with relevant Defence Orders and Instructions and applicable CASA compliance.

Work is performed under limited supervision.

This unit is nominally packaged a Certificate IV.

### Licensing/Regulatory Information

Not applicable.

## **Pre-Requisites**

Not applicable.

## **Employability Skills Information**

**Employability Skills**                      This unit contains employability skills.

## **Elements and Performance Criteria Pre-Content**

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<b>1 Climb aeroplane</b>	1.1 Adjustments are made to attitude and power to achieve an increase of altitude at normal, maximum rate ( $V_y$ ), maximum angle ( $V_x$ ) and cruise conditions of flight during straight and turning manoeuvres 1.2 Aeroplane is maintained in balanced flight and trimmed 1.3 Aeroplane is levelled off from climb at nominated altitude using standard aeroplane procedures 1.4 Flightpath clearance is ensured 1.5 Climb checks are completed 1.6 Air traffic control altitude restrictions are observed
<b>2 Maintain straight and level flight</b>	2.1 Power, attitude and configuration are set to achieve straight and level flight 2.2 Aeroplane is maintained in balanced flight and trimmed 2.3 Altitude and heading are maintained within tolerances 2.4 Flightpath clearance is ensured
<b>3 Descend aeroplane</b>	3.1 Power, attitude and configuration are set to achieve descent during glide, power assisted flight and approach profiles 3.2 Aeroplane is maintained in balanced flight and trimmed 3.3 Aeroplane is levelled from a descent at a nominated altitude 3.4 Flightpath clearance is ensured 3.5 Air traffic control altitude restrictions are observed 3.6 Aeroplane does not exceed operating limits during descent 3.7 Effects of undercarriage and flaps are managed 3.8 Descent checks are completed
<b>4 Turn aeroplane</b>	4.1 'Airspace cleared' procedure is carried out 4.2 Heading is altered in balanced flight during level, climbing, descending and gliding manoeuvres and turns are performed at varying rates to achieve specified tracks 4.3 Turn on to nominated heading or geographical feature is achieved 4.4 Aeroplane does not exceed operating limits during turns
<b>5 Control aeroplane at slow speed</b>	5.1 Pre-manoevre checks are completed in accordance with operating procedures 5.2 Aeroplane is flown at minimum clean approach speed and at minimum landing configuration approach speed as specified in Flight Manual/POH in balanced flight 5.3 Height awareness is maintained during slow speed flight 5.4 Recovery to cruise speed is achieved whilst maintaining height

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
<b>6 Perform circuits and approaches</b>	<p>6.1 Traffic patterns are conducted in accordance with AIP procedures appropriate to the aeroplane type with allowance for wind velocity on all legs of the circuit</p> <p>6.2 All checklists are completed and radiotelephone procedures followed</p> <p>6.3 The approach path is appropriately intercepted and maintained in a manner applicable to the aeroplane type, whilst remaining clear of other traffic</p> <p>6.4 Traffic conflict or adverse flight conditions are recognised when they arise and a go-around is performed from any position in the traffic pattern</p> <p>6.5 Right of way rules are applied and complied with</p> <p>6.6 Radio listening watch is maintained in accordance with established procedures</p> <p>6.7 Aeroplane is configured for landing</p>
<b>7 Comply with airspace requirements</b>	<p>7.1 While aeroplane is maintained within a specified area, compliance is maintained with air traffic requirements and controlled or restricted airspace conditions or limitations</p> <p>7.2 Appropriate reactions are made to factors which may affect the safe progress of the flight</p> <p>7.3 Awareness of aeroplane position is maintained using charts and geographical features</p> <p>7.4 Radio listening watch is maintained in accordance with established procedures</p> <p>7.5 Weather conditions are monitored and an appropriate action is taken</p> <p>7.6 Local and published noise abatement requirements and curfews are observed</p>

## Required Skills and Knowledge

### REQUIRED KNOWLEDGE AND SKILLS

This describes the essential knowledge and skills and their level required for this unit.

#### Required knowledge:

- Relevant sections of Civil Aviation Regulations and Orders
- In Defence context, relevant Defence Orders and Instructions
- Relevant OH&S and environmental procedures and regulations
- Principles of aerodynamics
- Functions and effects of all aeroplane controls
- Procedures for setting power in normally aspirated, turbocharged or supercharged engines as applicable
- Theory and application of best rate and angle of climb
- Use of instruments to monitor aeroplane performance
- Relationship of attitude and power to trim
- Use of trim controls
- Use of autopilot/flight director functions where applicable
- Operation of stall warning devices fitted to aeroplane
- Effects of flap
- Use of flap
- The effects of excessive cooling on engine performance
- Effects of carburettor or intake icing
- The effects and use of carburettor heat or de-icing systems
- The requirements and procedures for maximum rate descent
- Hazards during maximum rate descent
- 'Airspace cleared' procedure to be carried out before all turns
- The effect of turning and acceleration on magnetic compass accuracy
- The tendency to under bank in descending turn and over bank in a climbing turn
- Cause of and compensation for aileron drag
- The effect of angle of bank and load factor on stall speeds
- Circuit patterns and procedures
- Go-around procedures from base leg and final approach
- Pre-landing checks
- After take-off checks
- The dangers of turbulence and wake turbulence when flying at low speed
- The effect of turning and acceleration on magnetic compass accuracy
- Day VFR criteria

## REQUIRED KNOWLEDGE AND SKILLS

### Required skills:

- Apply the techniques of straight and level, climbing and descending flight to achieve a consistent traffic pattern and approach to landing
- Compensate for the secondary effects of controls
- Perform various functions simultaneously as required
- Maintain separation between aircraft
- Remain within a designated area whilst complying with airspace and air traffic requirements
- Use instruments to monitor aeroplane performance
- Maintain compliance with regulatory requirements
- Communicate effectively with others when controlling an aeroplane in normal flight including use of radio
- Read and interpret instructions, regulations, procedures and other information relevant to controlling an aeroplane in normal flight
- Interpret and follow operational instructions and prioritise work
- Complete documentation related to controlling an aeroplane in normal flight
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when controlling an aeroplane in normal flight
- Adapt appropriately to cultural differences in the workplace, including modes of behaviour and interactions with others
- Promptly report and/or rectify any identified problems that may occur when controlling an aeroplane in normal flight in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events that may arise when controlling an aeroplane in normal flight
- Apply precautions and required action to minimise, control or eliminate hazards that may exist when controlling an aeroplane in normal flight
- Monitor and anticipate operational problems and hazards and take appropriate action
- Monitor work activities in terms of planned schedule
- Modify activities dependent on differing workplace contingencies, situations and environments
- Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- Adapt to differences in equipment and operating environment in accordance with standard operating procedures
- Select and use required personal protective equipment conforming to industry and OH&S standards
- Implement OH&S procedures and relevant regulations
- Identify and correctly use equipment required when controlling an aeroplane in normal flight

## Evidence Guide

### EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills, the range statement and the assessment guidelines for this Training Package.

#### **Critical aspects for assessment and evidence required to demonstrate competency in this unit**

- The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of applying:
  - the underpinning knowledge and skills
  - relevant legislation and workplace procedures
  - other relevant aspects of the range statement

#### **Context of and specific resources for assessment**

- Performance is demonstrated consistently over a period of time and in a suitable range of contexts
- Resources for assessment include:
  - a range of relevant exercises, case studies and/or other simulated practical and knowledge assessment, and/or
  - access to an appropriate range of relevant operational situations in the workplace
  - In both real and simulated environments, access is required to:
    - relevant and appropriate materials and equipment, and
    - applicable documentation including workplace procedures, regulations, codes of practice and operation manuals

#### **Method of assessment**

- Assessment of this unit must be undertaken by a registered training organisation
- As a minimum, assessment of knowledge must be conducted through appropriate written/oral tests
- Practical assessment must occur:
  - through activities in an appropriately simulated environment at the registered training organisation, and/or
  - in an appropriate range of situations in the workplace



## Range Statement

### RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

- Tasks may be undertaken in:
- variable weather conditions in accordance with Day Visual Flight Rules
- Performance may be demonstrated in:
- single engine aeroplane
  - multi engine aeroplane
  - variable air traffic conditions
  - variable flight situations
  - abnormal situations
  - classes of airspace as designated by the Civil Aviation Safety Authority
- Performance may be demonstrated on an aeroplane with:
- fully functioning dual controls
  - an electronic intercom system
  - dual control brakes
  - (if propeller-driven) a constant speed propeller
  - a cruise speed of at least 120 kts TAS at cruise power
  - a suitable means of simulating instrument flight conditions
- Aeroplane may include:
- fixed wing
  - other commercial or military aircraft
- Crew may include:
- single pilot
  - multi crew
- Instruments may be:
- fitted flight instruments
  - head up displays
- Limitations may be imposed by:
- local noise abatement requirements and curfews
- Classes of airspace are:
- those designated by the Civil Aviation Safety Authority
- Runways may include:
- sealed
  - gravel
  - grass
- Turns may include:
- level
  - climbing
  - descending
- Checklists may include:
- climb
  - cruise
  - approach
  - descent
  - pre-landing

## RANGE STATEMENT

- final
  - standard
  - low-level
- Circuit height may include:
- company procedures
  - enterprise procedures
  - organisational procedures
  - established procedures
  - standard operating procedures
- Dependent on the type of organisation concerned and the local terminology used, workplace procedures may include:
- geographical limits of the flight area is demonstrated on a chart
  - prominent geographical features are identified using a chart
  - the limits of the flight area are identified on the ground
  - the position of controlled airspace is determined using a chart and geographical features
  - restricted areas are identified using a chart and geographical features
  - departure from the circuit area and transition to the flight area is completed without incident
  - departure from the flight area and transition to the circuit area is completed without incident
- Procedures maintaining compliance with airspace requirements are:
- relevant sections of Civil Aviation Safety Regulations and Civil Aviation Orders including Day Visual Flight Rules (Day VFR)
  - in Defence context, relevant Defence Orders and Instructions
  - Flight Manual/Pilot's Operating Handbook (POH)
  - Manual of Standards - Pilot Licensing (MOS-PL)
  - Aeronautical Information Publication (AIP)
  - En Route Supplement Australia (ERSA)
  - charts
  - operations manuals
  - approved checklists
  - workplace procedures and instructions and job specification
  - induction and training materials
  - conditions of service, legislation and industrial agreements including workplace agreements and awards
- Information/documents may include:
- relevant Civil Aviation Safety Regulations and Civil Aviation Orders
  - in Defence context, relevant Defence Orders and
- Applicable regulations and legislation may include:

**RANGE STATEMENT**

Performance includes tolerances specified in either of:

**Instructions**

- relevant state/territory OH&S legislation
- relevant state/territory environmental protection legislation
- relevant Australian Standards
- relevant licence and aircraft rating requirements of the Civil Aviation Safety Authority (CASA) such as:
  - Day VFR Syllabus
  - Manual of Standards
  - relevant Defence documentation such as:
    - Defence Orders and Instructions
    - approved curricula and training documentation

**Unit Sector(s)**

Not applicable.

**Competency field****Competency Field**

Y - Aircraft Operation and Traffic Management