



**Australian Government**

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

# **AVIH4001B Navigate aircraft - VFR**

**Revision Number: 1**

## AVIH4001B Navigate aircraft - VFR

### Modification History

Not applicable.

### Unit Descriptor

#### Unit Descriptor

This unit involves the skills and knowledge required to navigate an aircraft including completing pre-flight planning; obtaining, acting on and complying with air traffic information and clearances; departing from and arriving at an aerodrome; navigating under normal and abnormal conditions; and carrying out emergency procedures. 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 related to the navigation of an aircraft.

Operations are conducted as part of commercial and 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 at 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

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
<b>1 Prepare chart and flight plan</b>	<ul style="list-style-type: none"><li>1.1 Charts suitable for the intended flight are selected and prepared</li><li>1.2 Applicable information is obtained, analysed and applied to produce a flight plan which details tracks, distances, times and fuel requirements to reach a destination</li><li>1.3 Pre-flight planning is used to minimise in-flight navigational work load</li><li>1.4 A decision to proceed with the cross country flight is made after analysis of meteorological and air traffic control conditions</li><li>1.5 Hazards are marked on charts where applicable</li></ul>
<b>2 Comply with airspace procedures</b>	<ul style="list-style-type: none"><li>2.1 Air traffic clearances are obtained and compliance with them is maintained</li><li>2.2 Compliance is maintained with airspace procedures</li><li>2.3 Controlled airspace is only entered with a clearance</li><li>2.4 Traffic separation is maintained</li></ul>
<b>3 Conduct departure procedures</b>	<ul style="list-style-type: none"><li>3.1 Pre-flight planning and cockpit organisation is conducted to ensure charts, documentation and navigational equipment are accessible from the control seat</li><li>3.2 Departure administration and communication is conducted</li><li>3.3 Track is intercepted within five nautical miles of airfield and departure time is recorded</li><li>3.4 Orientation is always maintained</li><li>3.5 Priority is given to controlling the aircraft before conducting navigation administration or communication</li><li>3.6 Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility and terrain</li><li>3.7 Local and published noise abatement requirements and curfews are observed</li></ul>
<b>4 Navigate aircraft en route</b>	<ul style="list-style-type: none"><li>4.1 Planned route is maintained in accordance with regulatory requirements and procedures</li><li>4.2 In-flight documentation and communication is completed in accordance with regulatory requirements and workplace procedures</li><li>4.3 Estimated Time of Arrivals (ETAs) are checked and revised as required</li><li>4.4 Fuel consumption is monitored and reserves are revised</li><li>4.5 Pre-descent or navigation turning point checks are executed</li><li>4.6 A navigation cycle which ensures accurate navigation is used</li><li>4.7 Separation with air traffic is maintained</li><li>4.8 Emphasis is placed on controlling the aircraft before conducting</li></ul>

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
	navigation administration or communication
	4.9 Deteriorating meteorological and navigation situations are recognised and early corrective action is taken
	4.10 Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility and terrain
<b>5 Navigate at low level and in reduced visibility</b>	5.1 Compliance with Visual Flight Rules (VFR) is maintained during navigation at low level or in reduced visibility
	5.2 Pre-descent and/or navigation turning point checks are executed in accordance with regulatory requirements
	5.3 Planned route is maintained in accordance with regulatory requirements and procedures
	5.4 In-flight documentation is completed
	5.5 ETAs are checked and revised as required and a safe alternate plan is formulated and applied if required
	5.6 Aircraft is operated and configured to maintain minimum height AGL and safe separation from terrain
	5.7 Awareness of current and forecast weather conditions is maintained
	5.8 Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility and terrain
	5.9 Low flying hazards and threats are identified and avoided
	5.10 Effects of wind velocity, false horizons, rising ground, adverse environmental conditions (e.g. setting sun) and mountainous terrain are managed, and contingency actions are planned where appropriate
	5.11 Situation awareness is maintained at all times
<b>6 Perform lost procedure</b>	6.1 Position is fixed and new track to destination attainable within limits of fuel and daylight is determined
	6.2 Track to destination is re-established or replanned with consideration of fuel usage and reserves
	6.3 ETAs are re-calculated
	6.4 Radio, navigation aids, transponder and ATC services are used for assistance
	6.5 A timely precautionary search and landing is planned for possible circumstances of being lost or having no fuel or no light
	6.6 Emotional stability is maintained
<b>7 Perform diversion procedure</b>	7.1 Requirement to perform diversion is identified and a decision is made in accordance with procedures, regulatory requirements, and current and forecast weather conditions
	7.2 New route is determined and maintained

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
	7.3 ETAs are calculated
	7.4 Fuel requirements are recalculated
	7.5 Operational information is reviewed
	7.6 Compliance with airspace procedures is maintained
	7.7 Air traffic control is advised of action where possible
	7.8 All required 'airways clearances' are obtained
	7.9 SARWATCH is cancelled after arrival
<b>8 Use navigation aids</b>	8.1 Navigation aids/systems are utilised to confirm position, track and navigation information
	8.2 ATC radar is used for position information and tracking assistance
	8.3 Integrity of navigation aid/systems information is monitored and maintained
<b>9 Execute arrival procedures</b>	9.1 Applicable aviation weather and traffic information is obtained and applied
	9.2 Radio communications are established and maintained in accordance with regulatory requirements
	9.3 Descent point is calculated
	9.4 Arrivals and circuit procedures are executed at aerodromes in accordance with airspace and regulatory requirements
	9.5 Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility and terrain
	9.6 Airfield markings/lights/signals/indicators are interpreted, applied and followed
	9.7 Situation awareness is maintained
	9.8 Local and published noise abatement requirements and curfews are observed
	9.9 SARWATCH is cancelled

## 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 Safety Regulations and Civil Aviation Orders
- In ADF context, relevant Defence Orders and Instructions
- Relevant OH&S and environmental procedures and regulations
- The characteristics of different chart types
- Flight planning requirements
- Use of the navigational computer
- The aircraft fuel usage rates
- Relevant sections of CAAP 234-1 (Civil Aviation Advisory Publication)
- Traffic rules and procedures
- Air navigation techniques
- Factors affecting en route performance, range and endurance
- Critical point and point of no return
- DR navigation technique
- Identification by shape, dimensions, contrast and colour, and uniqueness of ground features
- Low level navigation techniques
- Allowances for changed visual aspects of ground features at low level
- En route navigation technique
- Chart reading techniques
- Procedures for requesting clearances from and into controlled airspace
- Identification of CTA, CTR, Prohibited, Restricted and Danger areas
- The principles of operation of navigation aids/systems
- The limitations of navigation aids/systems
- Controlled airspace requirements
- Circuit and circuit joining procedures
- The potential impacts of specific weather phenomena on aviation operations

#### Required skills:

- Perform the navigational functions within the parameters of the applicable regulations, orders and operations manual procedures
- Prepare charts and flight plans
- Plan applicable altitudes/flight levels and tracking tolerances to avoid controlled airspace when required

## REQUIRED KNOWLEDGE AND SKILLS

- Carry out DR navigation technique
- Determine DR position
- Maintain compliance with regulatory requirements
- Maintain Navigation Log
- Select and use appropriate navigational instruments and aids
- Source and interpret aviation weather forecast products and services appropriate to flight planning and navigation procedures
- Adjust aircraft performance to achieve desired timings
- Calculate fuel endurance
- Calculate distance and rate of closure rates to/from ground features
- Fix aircraft position
- Apply air safety practices and regulations
- Recognise significant variances from forecast meteorological conditions and take appropriate actions, including the issue of an AIREP
- Maintain construction, communication and execution of a traffic deconfliction plan
- Communicate effectively with others when navigating aircraft
- Read and interpret instructions, regulations, procedures and other information relevant to the navigation of an aircraft
- Interpret and follow operational instructions and prioritise workload
- Complete documentation related to navigating aircraft
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when navigating aircraft
- 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 navigating aircraft in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events that may arise when navigating aircraft
- Apply precautions and required action to minimise, control or eliminate hazards that may exist during the navigation of an aircraft
- 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



**REQUIRED KNOWLEDGE AND SKILLS**

- Implement OH&S procedures and relevant regulations
- Identify and correctly use equipment required to navigate an aircraft

# 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 aircraft
  - multi engine aircraft
  - variable air traffic conditions
  - variable flight situations
  - abnormal situations
  - classes of airspace as designated by the Civil Aviation Safety Authority
- Aircraft may include:
- fixed wing
  - helicopter
  - 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
  - airspace endorsements
- Classes of airspace may be:
- as designated by the regulator
  - restricted and danger areas
  - military control zones
  - Air Defence Identification Zones
- Production methods for flight plans may utilise:
- manual planning methods, and
  - Automated Flight Planning Systems
- Navigation aids may include electronic, mechanical and/or radio systems such as:
- ADF (Automatic Direction Finder)
  - VOR (VHF Omni-directional Radio Range)
  - DME (Distance Measuring Equipment)
  - RADAR
  - GPS (Global Positioning System)
  - FMS (Flight Management Systems)
  - Moving Map Displays
  - TACAN
  - INS
- Operation of navigation aids/systems may include:
- normal mode
  - degraded mode

## RANGE STATEMENT

Low flying hazards and threats may include:

- man-made e.g. power lines, masts
- terrain
- birds/wildlife
- environmental
- other airspace operations

Circuits procedures at an aerodrome may include:

- upwind
- crosswind
- downwind
- base
- finals
- joining/departing

Dependent on the type of organisation concerned and the local terminology used, workplace procedures may include:

- company procedures
- enterprise procedures
- organisational procedures
- established procedures
- standard operating procedures

Information/documents may include:

- relevant sections of Civil Aviation Safety Regulations and Civil Aviation Orders pertaining to the navigation of an aircraft
- in ADF 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) or equivalent
- relevant sections of the Civil Aviation Advisory Publications (CAAP)
- 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
- relevant Bureau of Meteorology, International Civil Aviation Organization (ICAO) and/or World Meteorology Organization (WMO) publications

Applicable regulations and legislation may include:

- relevant Civil Aviation Safety Regulations and Civil Aviation Orders
- in ADF context, relevant Defence Orders and Instructions
- relevant state/territory OH&S legislation

**RANGE STATEMENT**

Performance includes tolerances specified in either of:

- 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**                      H - Route Planning and Navigation