AVIY5049A Provide area control services

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit Descriptor	This unit provides the knowledge and an inventory of skills and behaviours specific to providing air traffic services in airspaces within en route areas. Licensing, legislative, regulatory or certification requirements are applicable to this unit.

Application of the Unit

Application of the Unit	This unit is applied to specific airspaces that offer varying levels of air traffic services according to the ICAO and national classifications of airspaces.
	Persons exercising competence in this unit will need to fulfil the licensing and regulatory requirements of the Civil Aviation Safety Authority pertaining to air traffic controllers.
	Use for ADF Aviation is to be in accordance with relevant Defence Orders and Instructions and applicable CASA compliance.
	Work is performed under various levels of supervision dependent on workplace context, and might be in a team environment.
	Work involves applying separation standards. It assesses the controller s ability to apply the full range of separation standards or provide traffic advice in situations involving medium to high levels of traffic volume and complexity and in adverse weather conditions.
	This unit of competency is packaged at Diploma level.

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
1 Manage en route airspaces	1.1 Traffic priorities are applied according to standard operating procedure
	1.2 Service priorities are applied according to which is most safety critical
	1.3 Control practices and techniques are adapted to changing airspace environment factors
	1.4 Surveillance of airspaces and air routes is maintained using systematic scan technique at a rate determined by environment factors
	1.5 Standard routing and/or user preferred routing is facilitated when able
	1.6 Documented instructions and agreements applicable to the area of jurisdiction are observed
	1.7 Unauthorised use of airspaces and operational deviation from control instruction and procedure are recognised and rectified
	1.8 Terrain and obstacle clearance is provided where necessary
	1.9 Pilot requested altitudes or flight levels are facilitated when able
	1.10 Aircraft are authorised to use en route airspaces
	1.11 Control services are provided according to airspace classification and status
	1.12 Airspaces are administered according to user activity
	1.13 Flight diversions are facilitated where necessary
2 Assure separation	2.1 Aircraft conflicts are recognised and resolved
	2.2 Aircraft separation is provided
	2.3 Jurisdiction for maintaining aircraft separation is agreed and assigned
	2.4 Alternative aircraft separation is provided when required
	2.5 Aircraft separation is adjusted if required when systems are degraded or airways facilities are reduced
	2.6 Aircraft separation is most appropriate taking into account safety, expedition and the method of control and surveillance
	2.7 Compromised aircraft separation is recognised and recovered and administrative actions are taken in accordance with workplace procedure

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
- International and national air law including facilitation of international flight
- Relevant OH&S and environmental procedures and regulations
- Principles of effective air traffic control
- National operating standards, recommendations and system safety relevant to air traffic management
- National airspace system and standard route structure
- Rules of the air governing visual and instrument flight
- Principles of flight, operation and functioning of aircraft power-plants; systems and aircraft performance relevant to area control services
- Meteorological documentation, terms and definitions, information and the origin and characteristics of weather phenomena affecting flight operations including local phenomena
- Principles and procedures of altimetry
- Principles, limitations and accuracy of air navigation; navigation systems and visual aids, including terms; and definitions and required navigation performance relevant to area control services
- Basic time, distance and speed navigation solutions; track error, closing angles, drift and track made good
- Traffic Collision and Avoidance Systems
- Aeronautical documentation and safety practices associated with the planning and conduct of flight
- Provision of air traffic services (air traffic control, flight information service and search and rescue alerting), aeronautical information services, air traffic flow management and airspace management including terms and definitions
- Air traffic services and air traffic flow management communication phraseologies and procedures
- Security against acts of unlawful interference
- Air traffic management corporate aspiration, mission, service and culture
- Aircraft type recognition and associated wake turbulence and performance categories
- Air traffic priorities
- Airspace service priorities and the safety imperative
- Aeronautical charts and maps used in aviation
- Organisational and licensing administration
- Safety occurrence reporting and just culture in the air traffic management workplace

REQUIRED KNOWLEDGE AND SKILLS

- Jurisdiction and adjacent airspace characteristics
- Standard route structures and associated procedures, reporting, lowest safe heights, cruising levels and transfer of control points
- Flexible tracking and user-preferred routing
- Terrain and prominent landmarks affecting flight operations within en route airspace
- Characteristics of en route sector air traffic patterns and traffic flows including hotspots, congestion and location of aerodromes and runways within and adjacent to jurisdiction airspace
- Goals and characteristics of military flight operations
- Prioritisation of area control tasks to achieve the safety critical imperative
- Recovering from compromised aircraft separation and unauthorised use of airspaces
- Division of responsibilities for air traffic services and air traffic flow management between en route airspaces and other interfacing elements
- Aircraft conflict recognition and resolution in en route airspaces
- Provision of air traffic services and air traffic flow management during system degradation including facility failures and restoration of system components
- Area control separation standards and techniques and wake turbulence separation
- Procedures for recording and/or annotating operational information
- Coordination of air traffic services and air traffic flow management information
- Departure and approach to land procedures and transition from instrument flight to visual flight and terrain protection
- Conditional air traffic clearance
- Adjusting route, track, heading and speed of aircraft
- Handover-takeover procedures and practices
- Human-machine Interface (HMI) states and associated interactions
- Formation flight configurations, separation and procedures and practices

Required skills:

- Communicate effectively with others when providing area control services
- Actively listen when providing area control services
- Perceive incoming information associated with strategic, tactical, geographic, spatial, system and environment components of a complex system
- Comprehend incoming information and develop the current airspace and flight path model
- Read and interpret instructions, regulations, procedures and other information relevant to area control services
- Interpret and follow operational instructions and prioritise work
- Complete documentation related to area control services

REQUIRED KNOWLEDGE AND SKILLS

- Operate electronic communication equipment to required protocol

- Provide leadership and work collaboratively with others when providing area control services

- Communicate in a team by exchanging information through assigning responsibility, acknowledgment, inquiring, and by recognising and noting facts that create team rapport and enhance team outputs

- 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 providing area control services in accordance with regulatory requirements and workplace procedures

- Make decisions when providing area control services

- Implement decisions using knowledge-based, rule-based and skill-based activities

- Demonstrate an attitude to error management that limits unintentional deviation from work practices and maintains accuracy through application of disciplined procedures and practices and a methodical work ethic

- Conduct aeronautical decision making

- Maintain a strategic traffic management goal for the jurisdiction airspace

- Implement contingency plans for unexpected events that may arise when providing area control services

- Apply precautions and required action to minimise, control or eliminate hazards that may exist when providing area control services

- Monitor and anticipate operational problems and hazards and take appropriate action

- Monitor work activities in terms of planned schedule

- Anticipate and prepare for work tasks

- Adhere to procedures through a series of steps followed in a regular definite order or a traditional or established way of doing things when this is required

- Modify activities dependent on differing workplace contingencies, situations and environments

- Judge and form an opinion or evaluate situations by discerning and comparing information

- React to some form of treatment or stressful situation by a considered and measured response in a timely fashion

- 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

- Be receptive to training for the skills, knowledge, or experiences acquired or gained over a career

- Implement OH&S procedures and relevant regulations

- Identify and correctly use equipment required to provide area control services

- Separate aircraft using area control techniques and standards

- Separate aircraft using wake turbulence standards

REQUIRED KNOWLEDGE AND SKILLS

- Assign separation to the pilot
- Process military aircraft
- Interpret charts, maps and operational documentation associated with planning and conduct of flight
- Facilitate in-flight diversions and/or changes of altitude and flight level
- Maintain surveillance of en route airspaces
- Scan the Human-machine Interface (HMI)
- Formulate airways clearance and control instruction
- Adjust route and track of aircraft
- Vary heading of aircraft
- Vary speed of aircraft
- Record and annotate flight information and messages
- Use checklists
- Maintain surveillance in degraded mode
- Plan and prioritise tasks according to the safety imperative
- Interpret and evaluate current traffic events
- Project and predict future traffic scenarios
- Execute control actions
- Apply human reasoning to airspace and flight path scenarios
- Allocate attention according to demand and constantly switch between: managing the Human-machine Interface or equipment use; managing communications; and managing traffic

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.

Operations may be conducted	• by day or night • in variable weather conditions
Performance may be demonstrated in:	• simulated situations, and/or • an operational air traffic control workplace
Conflict of air traffic:	• is a situation in which, in the opinion of air traffic services personnel, the distance between aircraft as well as their relative positions and speed might compromise the safety of the aircraft operations • can occur between: aircraft, aircraft and obstructions, aircraft and vehicles/pedestrians, and aircraft and airspace boundaries
Recognising air traffic conflict might include:	• maintaining situational awareness • scanning techniques • system tools for recognising conflicts • Graphic Display Tools • Flight Progress Strip (FPS) placement and manipulation and Flight Data Records (FDR)
System tools for recognising comprised separation may include:	• Short Term Conflict Alert (STCA) • Danger Area Infringement Warning (DAIW) • Minimum Safe Altitude Warning (MSAW) • Route Adherence Monitoring (RAM) • Cleared Level Adherence Monitoring (CLAM) • ADS Route Conformance Warning (ARCW) • Bearing and Range Line
Separation standards include:	• vertical separation standards (including with terrain) • reduced vertical separation standards (RVSM) • longitudinal separation standards • lateral separation standards • radar separation standards • ADS and ADS (B) standards • wake turbulence separation standards • visual separation standards • sight and follow standard • runway separation standards • emergency separation standards (vertical)
Alternative methods of resolving	• pilot responsibility for separation

RANGE STATEMENT

conflicts might include:	• adjusting route, track, heading or speed of aircraft • delaying clearances, including clearance to enter particular classifications of airspace • conditional clearances, requirements and limits • use of recommended headings under RADAR outside controlled airspace • refusing requests from pilots and/or other controllers • passing traffic information
Compromised separation might include:	• situations where less than the applicable separation minima occurs between: aircraft; an aircraft and a hazard; or an aircraft and airspace boundaries • situations where separation assurance is not achieved (Loss of Separation Assurance - LOSA) • situations where one aircraft is subject to an emergency, i.e. emergency descent or forced landing
Administrative actions might include:	• incident reporting procedures • 'stand-down' procedures
Tactical separation assurance is defined as that which is achieved through:	• proactive application of separation standards to avoid rather than resolve conflicts • planning traffic to guarantee rather than achieve separation • executing the plan so as to guarantee separation • monitoring the situation to ensure that plan and execution are effective
Strategic separation assurance is defined as that which:	• places emphasis on the designing of airspace, air routes, air traffic management plans and air traffic control practices to reduce the likelihood aircraft will come into conflict
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 • regulatory standards and recommended practices
Information/documents may include:	• Civil Aviation Safety Authority (CASA) regulations and Manuals of Standards (MOS) • Local Instructions (LI) and Temporary Local Instructions (TLI) • training curricula and syllabi • equipment manufacturers specifications and instructions • Manual of Air Traffic Services (MATS) • Aeronautical Information Publication (AIP)

RANGE STATEMENT

	• workplace procedures, instructions
	• Training Standards Manual (TSM)
	• ICAO Document 4444, ATM/501, Procedures for Air Navigation Services, Air Traffic Management
	• occupational specification for air traffic controllers
	• industrial certified agreements and awards
	• training and assessment records
	• documented learning and assessment strategies
Applicable regulations and legislation may include:	• International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARP)
	• Civil Aviation Safety Regulations (CASR) and Manuals of Standards (MOS)
	• relevant Defence Orders and Instructions
	• Airservices Act (Commonwealth) 1995
	• OH&S Legislation (state and federal)
	• Civil Aviation Act (Commonwealth) 1988 and the Civil Aviation Amendment Act 1995

Unit Sector(s)

Not applicable.

Competency field

Competency Field   Y - Aircraft Operation and Traffic Management