



Australian Government

Department of Education, Employment and Workplace Relations

AVIW5013B Operate air traffic control equipment and workstations

Revision Number: 1

AVIW5013B Operate air traffic control equipment and workstations

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to work as part of a team and to manage and operate air traffic control equipment, systems and workstations associated with providing air traffic services. 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 air traffic control regulatory requirements of the Civil Aviation Safety Authority (CASA).

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 in a team environment.

This unit assesses a controller's ability to interact with a workstation Human-machine Interface (HMI) and to operate the functions of the workstation which are critical to providing safe and efficient air traffic services.

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 Operate communication equipment	1.1 Air-ground communication channels are operated in accordance with standard operating procedure 1.2 Selective call and priority channels are operated in accordance with standard operating procedure 1.3 Communication equipment is operated in degraded mode 1.4 Communication equipment is appropriately configured for tasks 1.5 Communication malfunctions are recognised, reported and rectified when able 1.6 Communication equipment annunciators are included in scan pattern 1.7 Communication equipment is operated within performance limitations 1.8 Communication alarms and warning messages are actioned
2 Operate surveillance equipment	2.1 Air situation displays are appropriately configured for tasks 2.2 Surveillance equipment is operated in degraded mode 2.3 Surveillance tools are effectively used 2.4 Surveillance malfunctions are recognised, reported and rectified when able 2.5 Surveillance equipment is included in scan pattern 2.6 Surveillance equipment is operated within performance limitations 2.7 Surveillance alarms and warning messages are actioned 2.8 Surveillance system data is interpreted for pertinent operational information
3 Use Flight Progress Strips (FPS) and Flight Data Records (FDR)	3.1 Information is interpreted and recorded on FPS and FDR using prescribed format 3.2 FPS and FDR are updated to reflect current air traffic situation 3.3 FPS and FDR are manipulated to reflect current and/or future air traffic situation 3.4 FPS and FDR are archived in accordance with workplace procedure 3.5 FPS and FDR are included in scan pattern and cross-referenced for accuracy
4 Operate ancillary equipment	4.1 Ancillary equipment is matched and configured to tasks 4.2 Ancillary equipment is included in scan pattern 4.3 Ancillary equipment is operated within performance limitations and/or workplace procedure 4.4 Ancillary equipment data is interpreted for pertinent operational

ELEMENT	PERFORMANCE CRITERIA
	information, and processed as required
	4.5 Aids to navigation are monitored for serviceability when able
	4.6 Ancillary equipment malfunctions are recognised, reported and rectified when able
	4.7 Ancillary equipment alarms and warning messages are actioned
5 Where provided, use graphic facilities for route	5.1 Facilities are used to assist in recognising conflict situations and solving separation problems
	5.2 Graphic facilities are used at appropriate levels of efficiency
6 Where provided, use graphic or other facilities for display	6.1 Graphic or other facilities are used to maintain an accurate traffic picture
	6.2 Graphic or other facilities are used at appropriate levels of efficiency
7 Use mandated memory prompts	7.1 Mandated memory prompts are used in accordance with workplace procedures
	7.2 Mandated memory prompts are used at an appropriate level of efficiency

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
- Relevant OH&S and environmental procedures and regulations
- Principles of effective air traffic control
- Procedures for the operation of equipment and workstations
- Procedures for the use of flight progress strips and/or running sheets, where applicable
- Appropriate responses in the event of facility failures and alarms, including knowledge of degraded modes and types of facility failures (e.g. use of relevant checklists)
- Responsibilities for system, equipment and facilities operation
- Relevant facilities, HMI/workstation and equipment used, their functions and applications
- Relevant aspects of operational communication/navigation facilities (e.g. voice switch control systems, radar, CPDLC, ADS)
- Protocols and procedures surrounding the use of communication equipment
- Underlying system architecture and processes
- Relevant sections of the Air Traffic Services procedures manual and local instructions relevant to facility use
- Safety hazards and risks that exist when operating equipment and workstations and related risk control procedures and precautions
- Problems that may occur when operating equipment and workstations and appropriate action that should be taken in each case
- Degraded modes of operation for communication, surveillance and ancillary systems, including the availability of this equipment during degraded operations
- HMI states and events associated with the operating system
- Communication equipment functions, configurations, data sources (bias) and limitations
- Surveillance equipment functions, configurations, data sources (bias) and limitations
- Ancillary equipment functions, configurations, data sources (bias) and limitations
- Configuration, uses and limitations of flight progress strips and flight data records
- System architecture and redundancy including ultimate fallback
- Alerts, alarms and warning messages
- Indicators of malfunctioning equipment and degraded modes of operation
- Conflict recognition tools and graphic aids
- Surveillance range and footprints through, and adjacent to, the area of jurisdiction
- Communication range and footprints through, and adjacent to, the area of jurisdiction and adjoining frequencies

REQUIRED KNOWLEDGE AND SKILLS

- Occupational health and safety considerations concerning workplace equipment set up and use
- Aeronautical data bases relevant to providing air traffic services including aeronautical information functions
- Workstation layout and ergonomics
- Requirements for checking and testing equipment including frequencies
- Degraded modes handbook and checklists
- Air situation display default setups
- Sectorisation and combining and de-combining sectors
- Availability and use of maps, including system and private maps
- Bypass RADAR control input
- Allocation of SSR codes including sector specific codes
- Flight progress strips and flight data records
- System functions associated with flight information service and search and rescue alerting services

Required skills:

- Communicate effectively with others when operating air traffic control equipment and workstations
- Actively listen when operating air traffic control equipment and workstations
- Read and interpret instructions, regulations, procedures and other information relevant to air traffic control equipment and workstations
- Interpret and follow operational instructions and prioritise work
- 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
- Complete documentation related to the use of air traffic control equipment and workstations
- Operate electronic communication equipment to required protocol
- Format, send and receive electronic messages
- Operate equipment to communicate on appropriate frequencies
- 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 operating air traffic control equipment and workstations in accordance with regulatory requirements and workplace procedures
- Make decisions related to the use of air traffic control equipment and facilities
- Project and develop future airspace and flight path scenarios
- Maintain a strategic traffic management goal for the jurisdiction airspace

REQUIRED KNOWLEDGE AND SKILLS

- 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
- Implement contingency plans for unexpected events that may arise when operating air traffic control equipment and workstations
- 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
- Apply precautions and required action to minimise, control or eliminate hazards that may exist when operating air traffic control equipment and workstations
- Monitor and anticipate operational problems and hazards and take appropriate action
- 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
- 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
- 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 air traffic control equipment and workstations
- Be confident but not complacent or reliant on automation and technology, and readily 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
- Operate windows-based menus
- Operate input devices
- Configure voice switching and communications equipment and test for correct operation
- Configure ancillary equipment
- Merge communications equipment functions
- Operate communication equipment, bypass and retransmit facilities
- Configure primary and secondary air situation displays
- Action alerts, alarms and serviceability warnings
- Accept system upgrades
- Operate degraded equipment including in ultimate fallback configuration

REQUIRED KNOWLEDGE AND SKILLS

- Use aeronautical data bases
- Use electronic and mechanical memory prompts
- Monitor the serviceability of equipment
- Recognise faults as required to pass information of value to technicians
- Use flight progress strips and flight data records
- Use graphic on-screen tools and select and display maps
- Manipulate data labels and fields
- Use flow management systems, including incorporating runway changes
- Discriminate between and interpret displayed flight information
- Use conflict recognition tools and graphic aids
- Assess and manipulate message queues

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.

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| Operations may be conducted: | <ul style="list-style-type: none"> • by day or night • in variable weather conditions |
| Performance may be demonstrated in: | <ul style="list-style-type: none"> • simulated situations, and/or • an operational air traffic control workplace |
| HMI configuration could be: | <ul style="list-style-type: none"> • subject to standard operating configurations imposed by the operating authority. It is possible that individual setup for a workstation for enhancing personal performance will need to be constrained within the framework of the operating authority's instructions |
| Air traffic control workplace may be a workstation in: | <ul style="list-style-type: none"> • Area Control • Approach Control • Aerodrome Control |
| Operational facilities may include: | <ul style="list-style-type: none"> • display equipment • navigation systems • communications and surveillance equipment • lighting systems • arresting systems for military use |
| Mandated memory prompts may include: | <ul style="list-style-type: none"> • system prompts • timers • designators for aerodrome works, auto-release, runway-in-use • paper or electronic flight progress strip manipulations etc. |
| Aeronautical information may include but is not necessarily limited to: | <ul style="list-style-type: none"> • meteorological forecasts or reports • NOTAM information • aerodrome information |
| Graphic facilities for route may include but are not necessarily limited to: | <ul style="list-style-type: none"> • velocity vectors • projected position indicators • graphic re-routing functions |
| Graphic facilities for display include but are not necessarily limited to: | <ul style="list-style-type: none"> • varying display symbols • use of colour • use of filters • flight progress strip presentations • map presentations |
| Facility failure may be: | <ul style="list-style-type: none"> • total or partial |

RANGE STATEMENT

Alarms may be aural and/or visual and indicate either:	• aircraft emergency conditions, or • a discrepancy between expected and observed system conditions
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:	• training curricula and syllabi • relevant sections of Civil Aviation Safety Regulations • relevant CASA Manuals of Standards (MOS) • air traffic control Local Instructions (LI) and Temporary Local Instructions (TLI) • Manual of Air Traffic Services (MATS) • Aeronautical Information Publication (AIP) • Training Standards Manual (TSM) • ICAO Document 4444, ATM/501, Procedures for Air Navigation Services, Air Traffic Management • workplace procedures and instructions • occupational specification for air traffic controllers • equipment manufacturers specifications and instructions • induction and training materials • conditions of service, legislation and industrial agreements including workplace agreements and awards • training and assessment records • operator s handbook and system manuals • 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 W - Equipment and Systems Operations