



Australian Government

AVIW5018 Operate and manage aircraft systems

Release: 1

AVIW5018 Operate and manage aircraft systems

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 operate and manage aircraft systems, in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) and national operating standards

It includes operating and managing aircraft systems during normal flight, and managing aircraft systems during abnormal and emergency procedures.

This unit addresses aviation technical skill requirements (physical, mental and task-management abilities) related to equipment and system operations of flight or ground operations 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

W – Equipment and Systems Operations

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1 Operate and manage aircraft systems during normal flight	1.1 Aircraft systems, sub-systems (equipment) and devices applicable to aircraft type and task are operated and managed 1.2 Aircraft systems, sub-systems (equipment) and devices are monitored using a systematic scan technique 1.3 Aircraft systems and flight environment information is analysed to identify actual and potential threats or errors 1.4 Automated aircraft systems are utilised to manage cockpit workload 1.5 Hazards are identified, risks are assessed and hazard management is implemented 1.6 Checklist procedures are completed as appropriate to aircraft system
2 Manage aircraft systems during abnormal and emergency procedures	2.1 Non-normal or emergency situations are recognised 2.2 Control of aircraft flight path is maintained during abnormal and emergency response procedures 2.3 Affected aircraft system or sub-system is identified and confirmed 2.4 Checklist procedures are recalled and implemented during abnormal and emergency situations using appropriate techniques 2.5 Appropriate non-normal or emergency procedures are performed in accordance with relevant workplace and emergency procedures, and regulatory requirements 2.6 Course of action is decided, implemented, evaluated and revised to achieve safest outcomes 2.7 Location and operation of emergency systems applicable to aircraft type are explained

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 equivalent to AVIW5018A Operate and manage aircraft systems.

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 AVIW5018 Operate and manage aircraft systems

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 aeronautical and aircraft systems knowledge
- applying relevant legislation and workplace procedures
- communicating effectively with others
- completing relevant documentation
- 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 aircraft system displays
- interpreting and following operational instructions and prioritising work
- modifying activities depending on workplace contingencies, situations and environments
- monitoring and anticipating operational problems and hazards and taking appropriate action
- monitoring work activities in terms of planned schedule
- operating electronic communications equipment to required protocol
- operating manual and automated aircraft systems
- performing systematic scan technique for monitoring aircraft systems, sub-systems (equipment) and devices
- reading, interpreting and following relevant regulations, instructions, procedures, information and signs
- reporting and/or rectifying identified problems, faults or malfunctions promptly, in accordance with workplace procedures
- selecting and using required personal protective equipment conforming to industry and WHS/OHS standards
- undertaking fault finding in aircraft systems
- using automated systems to manage workload
- 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:

- aircraft systems as applicable to aircraft rating/endorsement requirements:
 - anti-icing and de-icing systems:
 - method of de-icing aerofoils, propeller and carburettor
 - heat or power source of de-icing/anti-icing equipment
 - anti-icing and de-icing system limitations
 - operation and control of anti-icing and de-icing systems
 - likely faults that may affect anti-icing and de-icing systems
 - emergency operating procedures for anti-icing and de-icing systems
- aircraft system checklists:
 - explanation of normal system operating procedures of aircraft systems, subsystems and devices used to operate specific aircraft type including use of published scans and checklists, immediate action items, warnings, limitations
- automated systems:
 - limitations of automated systems
 - operating procedures for systems such as flight management system, auto throttle/engine control, flight director system, automated aircraft navigation systems, automated engine condition and monitoring system
 - workload management procedures for utilising automated systems
 - warning systems/indicators to identify automated systems failure
- autopilot :
 - principles of operation of autopilot system
 - likely faults that may affect autopilot system
 - emergency operating procedures for autopilot system
 - identification of power sources, voltage or pressure
 - procedure to determine gyros are operating normally
 - procedure to engage autopilot
 - normal and emergency procedure to disengage autopilot
 - limits of gyro units
- electrical system:
 - use of a schematic diagram of the electrical system to explain type/s of electrical system (AC/DC)

- likely faults that may affect electrical system
- emergency operating procedures for electrical system
- voltage and amperage of battery
- number and output of generators
- methods of circuit protection
- location of fuses and circuit breakers
- precautions to be taken when operating electrical service
- instruments operated by electrics
- enhanced ground proximity warning system/terrain awareness and warning system (EGPWS/TAWS):
 - identification and demonstration or explanation of function of all cockpit EGPWS/TAWS controls
 - information terrain awareness display shows
 - warnings given by fitted EGPWS/TAWS, including what each warning indicates is happening to aircraft in flight
- fuel system:
 - use of a schematic diagram of fuel system to explain layout and normal operating procedures
 - likely faults that may affect fuel system
 - emergency operating procedures for fuel system
 - operation of fuel selector panel
 - use of cross-feed
 - fuel-dumping procedures
 - full fuel capacity and fuel grade
 - normal, minimum and maximum fuel pressures
- heating, ventilation and pressurisation systems:
 - normal procedures to operate and control system
 - likely faults that may affect heating, ventilation and pressurisation system
 - emergency procedures for operation of system
 - precautions to be complied with
- hydraulic system :
 - use of a schematic diagram of hydraulic system to explain layout and normal operating procedures
 - likely faults that may affect hydraulic system
 - emergency operating procedures for hydraulic system
 - units or services operated by hydraulics
 - type of hydraulic fluid, operating pressure and capacity of reservoir
- oil system:
 - use of a schematic diagram of oil system to explain functions of oil system
 - likely faults that may affect oil system

- emergency operating procedures for oil system
- number of tanks, capacity and oil grade
- oil sources of auxiliary systems such as constant speed unit (CSU), propeller feathering if fitted
- normal, minimum and maximum oil pressure and temperature
- operation of oil cooling system
- pitot/static system:
 - use of a schematic diagram to explain layout and operation of pitot/static system
 - heating source of pitot system
 - operating procedure for pitot/static system
 - methods of detecting pitot/static system problems
 - procedures to rectify static system problems
 - location of pitot and static pressure source
 - location of static drain points
- pressurisation systems:
 - pressurisation failure warning indications fitted to aircraft type flown
 - function of bleed air with respect to an aircraft pressurisation system
 - procedure for manual control of cabin pressurisation applicable to aircraft type flown
 - recall of maximum pressure differential for aircraft type flown
 - symptoms, indications and warnings that may indicate failure of pressurisation system
 - automatic depressurisation system operation procedures after landing
 - physiological symptoms of hypoxia
 - physical and psychological hazards that could occur during a rapid decompression
 - cabin altitude above which supplementary oxygen must be used by crew and passengers
- retractable undercarriage:
 - method of preventing retraction of undercarriage on the ground
 - cockpit indications for undercarriage down and locked
 - cockpit indications for undercarriage retracted
 - emergency procedures to extend and lock undercarriage down
- suction system:
 - use of a schematic diagram of suction system to explain function of suction system
 - source of suction pressure
 - normal operating pressure
 - instruments operated by suction pressure
 - warning system to indicate suction pump failure
- traffic and collision avoidance systems (TCAS):
 - surveillance and collision avoidance functions of TCAS II
 - system limitations, selectivity and inhibits
 - basic components of TCAS II
 - identification and demonstration or explanation of function of cockpit controls

- TCAS II visual displays and symbology
- functions of audio alerts and annunciations
- appropriate crew response to multiple TCAS II events, and parallel runway approach conflicts
- recall of radiotelephone procedures following a TCAS II alert
- requirements for a written report of a TCAS II alert and to whom it must be submitted.

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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