



Australian Government

Department of Education, Employment and Workplace Relations

AVIY4007B Manage aircraft fuel

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to manage aircraft fuel, including determining aircraft fuel requirements and performing the necessary calculations, refuelling the aircraft and ensuring the fuel system is configured and operated for maximum safety and efficiency in the prevailing flight conditions. It also includes calculating requirements, configuring the fuel system and making adjustments to achieve best range and best endurance within prescribed safety parameters. Licensing, legislative, regulatory or certification requirements are applicable to this unit.

Application of the Unit

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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 to managing aircraft fuel.

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

ELEMENT

PERFORMANCE CRITERIA

1 Plan fuel requirements

- 1.1 Total en route and reserve fuel requirement is determined in accordance with regulatory requirements
- 1.2 Allowance is made for possible abnormal or emergency situation

2 Manage fuel system

- 2.1 Fuel system is operated in accordance with Flight Manual/Pilot's Operating Handbook (POH)
- 2.2 Fuel contents and quality are confirmed before flight
- 2.3 Fuel status is monitored throughout flight and revised as circumstances change
- 2.4 Aircraft is configured to achieve desired profile, best range or endurance
- 2.5 OH&S procedures are followed at all times when carrying out fuel management procedures
- 2.6 Potential hazards are anticipated and precautions applied

3 Refuel aircraft

- 3.1 Aircraft is refuelled correctly in accordance with Flight Manual/POH, OH&S, regulatory requirements and workplace procedures
- 3.2 Appropriate precautions are taken to ensure the safety of personnel and property during refuelling operations

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 Defence context, relevant Defence Orders and Instructions
- Relevant OH&S and environmental procedures and regulations
- Principles of aircraft fuel systems
- The fuel consumption of the aircraft at varying power settings
- Factors affecting fuel consumption
- Calculation of conversion between imperial, United States and metric measures
- Mixture leaning technique, if applicable
- The fuel reserve requirement for aircraft
- Regulations and procedures for refuelling aircraft
- Methods of identifying applicable grade of fuel for aircraft type
- The dangers of using the incorrect grade of fuel
- The operation of the aircraft fuel system
- Procedures for the calculation of Equi Time Point (ETP) and Point of No Return (PNR)
- Aerodynamic, engine and airframe requirements for aircraft to achieve best range and endurance
- Hazards that exist when refuelling aircraft and related hazard control procedures and precautions
- Problems that may occur when managing aircraft fuel and appropriate action that should be taken in each case

Required skills:

- Plan aircraft fuel requirements
- Refuel an aircraft
- Manage the operation of an aircraft fuel system
- Calculate fuel allowances, consumption and endurance
- Recognise deteriorating situations impacting on fuel requirements
- Monitor fuel usage to achieve desired profile, best range or endurance following configuration changes
- Implement safety precautions during aircraft refuelling
- Maintain compliance with regulatory requirements
- Maintain workplace records relevant to aircraft fuel management

REQUIRED KNOWLEDGE AND SKILLS

- Read and interpret instructions, regulations, procedures and other information relevant to managing aircraft fuel
- Calculate Equi Time Point (ETP) and Point of No Return (PNR)
- Identify applicable grade of fuel for aircraft type
- Perform fuel quality control checks
- Apply air safety practices and regulations
- Communicate effectively with others when managing aircraft fuel
- Interpret and follow operational instructions and prioritise work
- Complete documentation related to managing aircraft fuel
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when managing aircraft fuel
- 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 managing aircraft fuel in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events that may arise when managing aircraft fuel
- Apply precautions and required action to minimise, control or eliminate hazards that may exist when managing aircraft fuel
- 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 managing aircraft fuel

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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| Tasks may be undertaken in: | <ul style="list-style-type: none">• variable weather conditions in accordance with Day Visual Flight Rules |
| Performance may be demonstrated in: | <ul style="list-style-type: none">• single engine aircraft• multi engine aircraft• variable air traffic conditions• variable weather conditions• variable flight situations• abnormal situations• classes of airspace as designated by the Civil Aviation Safety Authority |
| Performance may be demonstrated on an aircraft with: | <ul style="list-style-type: none">• 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 |
| Aircraft may include: | <ul style="list-style-type: none">• fixed wing• helicopter• other commercial or military aircraft |
| Crew may include: | <ul style="list-style-type: none">• single pilot• multi crew |
| Instruments may be: | <ul style="list-style-type: none">• fitted flight instruments• head up displays |
| Limitations may be imposed by: | <ul style="list-style-type: none">• local noise abatement requirements and curfews |
| Classes of airspace may be: | <ul style="list-style-type: none">• as designated by the regulator• restricted and danger areas• military control zones• Air Defence Identification Zones |
| Equipment for fuel transfer will be: | <ul style="list-style-type: none">• as appropriate for the type of aircraft and the fuel source being used |
| Fuel source may include: | <ul style="list-style-type: none">• fuel bowzers• fuel tanker• drummed fuel |
| Fuel allowances may be made for: | <ul style="list-style-type: none">• fixed fuel reserves• en route and destination meteorological forecasts |

RANGE STATEMENT

Dependent on the type of organisation concerned and the local terminology used, workplace procedures may include:	• airfield requirements • holding requirements • 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 including Day Visual Flight Rules (Day VFR) • in Defence context, relevant Defence Orders and Instructions • Flight Manual/Pilot's Operating Handbook (POH) • aircraft performance manual • Manual of Standards - Pilot Licensing (MOS-PL) • Aeronautical Information Publication (AIP) • En Route Supplement Australia (ERSA) or equivalent • charts • operations manuals • approved checklists • fuel log • workplace procedures and instructions and job specification • induction and training materials • conditions of service, legislation and industrial agreements including workplace agreements and awards
Applicable regulations and legislation may include:	• relevant Civil Aviation Safety Regulations and Civil Aviation Orders • in Defence context, relevant Defence Orders and Instructions • relevant state/territory OH&S legislation • relevant state/territory environmental protection legislation • relevant Australian Standards
Performance includes tolerances specified in either of:	• 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
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