



Australian Government

Department of Education, Employment and Workplace Relations

AVIW3026A Conduct night aided vision aviation operations

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to plan and conduct fixed and rotary wing night aided vision aviation operations. 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 regulatory requirements of the Civil Aviation Safety Authority and national operating standards.

Use for ADF Aviation is to be in accordance with relevant Defence Orders and Instructions and applicable CASA compliance.

Operations are conducted across a variety of operational contexts within the Australian aviation industry.

Work is performed under limited supervision.

This unit of competency is nominally packaged at Certificate III.

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

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| 1 Prepare for night aided vision operations | <ul style="list-style-type: none">1.1 Pre-flight information is obtained and prepared to identify safe flight routes, weather and operating terrain1.2 Risk assessment and management processes are implemented to minimise risk to safety of flight, personnel and equipment1.3 Night aided lighting limitations/considerations are reviewed1.4 All operating crew are briefed on the conduct of night aided aviation operations1.5 Night aided personal equipment is obtained and pre-operational checks are completed in accordance with organisational policies and procedures1.6 Aircraft night aided sensors, aids and equipment serviceability checks and adjustments are completed, and defects are identified and reported in accordance with organisational policies and procedures |
| 2 Conduct night aided vision operations | <ul style="list-style-type: none">2.1 Night aided equipment and systems are used to safely operate aircraft systems2.2 Instrumentation and system checks are completed at appropriate times to identify visual clues2.3 Night aided human physiological conditions are monitored and corrective action is taken where required in accordance with organisational policies2.4 Reconnaissance of operational area is completed to ensure aircraft safety2.5 Night aided emergency and abnormal conditions are identified and reacted to in accordance with organisational procedures and practices2.6 Situational awareness is maintained to ensure safety of aircraft, crew, personnel and equipment2.7 Crew resource management principles and processes are implemented in accordance with organisational policies to ensure operational intent |
| 3 Conclude night aided vision operations | <ul style="list-style-type: none">3.1 Post-flight analysis and debriefing is conducted in accordance with organisational policies3.2 Post-flight documentation is complete3.3 After use servicing is completed and identified defects are reported |

Required Skills and Knowledge

REQUIRED KNOWLEDGE AND SKILLS

This describes the essential knowledge and skills and their level required for this unit.

Required knowledge:

- Human physiological functions and the electromagnetic spectrum under night aided vision conditions
- Night aided vision equipment imaging systems operations
- Night aided vision equipment components and their functions
- Potential and/or common night aided vision equipment faults and defects
- Organisational policies that apply to storage, handling, usage and control of night aided vision equipment, sensors, aids and devices
- Organisational requirements for night aided vision equipment aircraft compatibility
- Human and aeromedical factors under night aided vision conditions
- Focal and ambient vision
- Night aided vision field of view, field of regard and how they relate to visual scanning techniques
- Night aided vision techniques for visually dark adapting
- Potential night aided vision illusions and misperceptions and their effects on spatial orientation
- Self-imposed and physiological fatigue issues that impact night aided vision operations
- Sources, types and effects of illumination levels in night aided vision operations
- Relationship between illuminance and luminance
- Effects of atmospheric conditions on electromagnetic energy and the resolution of night aided vision sensors, equipment and devices
- Meteorological conditions (rain, cloud, fog, haze, snow, smoke) affect on illumination levels and night aided vision equipment, sensor and/or device performance.
- Key visual cues for identifying and interpreting terrain features and obstacles under night aided vision conditions, including shadow and surface
- Cues and techniques that optimise navigation processes under night aided vision conditions
- Meteorological requirements for night aided vision aviation operations
- Internal and external organisational regulatory requirements for the conduct of night aided vision aviation operations
- Minimum crewing requirements for the conduct of night aided vision aviation operations
- Night aided vision operations qualification, currency and recency requirements
- Risk management processes and procedures applicable to night aided vision operations
- Flight planning considerations, terrain and route selection factors applicable to night aided vision operations
- Procedures and techniques to enhance in-flight navigation during night aided vision operations
- Night aided vision operations crew coordination procedures during pre-flight, flight operations

REQUIRED KNOWLEDGE AND SKILLS

and post-flight activities

- Concepts and procedures relating to blind cockpit and cabin checks
- Emergency and abnormal situation procedures applicable to night aided vision specific operations
- Occupational health and safety issues applicable to conducting night aided aviation operations

Required skills:

- Perform flight planning procedures relevant to the conduct of night aided vision aviation operations
- Interpret and calculate luminance/illumination levels for the conduct of night aided vision operations
- Plan own work including predicting consequences and identifying improvements
- Conduct and/or participate in pre-flight, flight and post-flight briefings and debriefings relevant to night aided vision operations
- Perform night aided vision sensor, equipment and/or device pre- and post-flight inspections and adjustments to ensure optimisation for use and/or future operation
- Conduct night aided vision aviation operations in accordance with organisational policies and procedures
- Apply principles of crew resource management relevant to night aided vision operations during flight
- Work collaboratively with others when conducting night aided aviation operations
- Work systematically with required attention to detail without injury to self or others, or damage to aircraft, crew, personnel and/or equipment
- Monitor work activities in terms of planned schedule
- Interpret and follow operational instructions and prioritise work during the conduct of night aided vision operations
- Maintain and/or regain degraded situational awareness whilst conducting night aided vision operations
- Communicate effectively with others when conducting night aided aviation operations
- Perform blind cockpit and/or cabin checks during relevant flight operational checks and procedures
- Apply visual scanning techniques and procedures during night aided vision operations
- Operate and adapt to differences in communication equipment in accordance with organisational procedures
- Promptly report and/or rectify any identified problems, faults or malfunctions that may occur conducting night aided aviation operations in accordance with workplace procedures
- Apply risk management processes, procedures and required actions to minimise, control or eliminate hazards that may exist when conducting night aided vision operations
- Implement contingency plans for unanticipated situations that may arise when conducting

REQUIRED KNOWLEDGE AND SKILLS

night aided aviation operations

- Modify activities depending on differing operational contingencies, risk situations and environments

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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| Aircraft may include: | <ul style="list-style-type: none">• single or multiple engine• fixed and rotary wing aircraft compatible with and authorised to conduct night aided aviation operations |
| Aircraft publications may include: | <ul style="list-style-type: none">• checklists• flight manuals• organisational policy and procedures manuals• aviation maintenance documentation |
| Pre-flight information may include: | <ul style="list-style-type: none">• authorised aviation maps, charts and flight supplements• meteorological information• terrain data• risk assessment and management factors |
| Work environment may include: | <ul style="list-style-type: none">• by night• over land or over sea• Prepared or Unprepared landing sites |
| Night aided environmental and cultural lighting may include: | <ul style="list-style-type: none">• lunar• solar• celestial• urban terrain lighting• ambient• maritime lighting• other aircraft |
| Night aided systems equipment preparation will include: | <ul style="list-style-type: none">• aircraft internal/external night aided lighting checks• aural and visual warning system checks• night aided sensors, aids and devices |
| Night aided vision equipment may include: | <ul style="list-style-type: none">• night vision goggles• night vision devices• heads up displays• forward looking infra red radars• thermal imaging systems• laser range finders |
| Night aided personal equipment serviceability checks may include: | <ul style="list-style-type: none">• non operation• intermittent operation• poor or degraded image quality• inability to focus• image obscurations• eyepiece or objective lens cannot be focused |

RANGE STATEMENT

	• eye-span and eye relief cannot be achieved • night aided equipment mounting systems unserviceable • low battery indicator will not illuminate during check • night aided sensors fail to initialise/self-test
Night aided compatible personal equipment may include:	• hand-held torches • IR compatible lighting systems • eye protection • flares, strobes, beacons and IR markers • lip and finger lights • personal life-support equipment
Unusual meteorological conditions may include:	• dust and rain • salt laden atmosphere • high humidity • cloud • turbulence • unforecast meteorological events • laser threat environments
Abnormal/emergency situations may include:	• aircraft emergencies • night aided aircraft and personal equipment failures • inadvertent IMC • degraded or loss of situational awareness • breakdown in crew coordination and communications
Night aided human physiological conditions may include:	• circadian dysrhythmia • mental or physical fatigue • visual illusions
Depending on the type of organisation concerned and the local terminology used, workplace procedures may include:	• company procedures • enterprise procedures • organisational procedures • established procedures
Information/documentation may include:	• relevant sections of Civil Aviation Safety Regulations • in Defence context, relevant Defence Orders and Instructions • Flight Manual/Pilot's Operating Handbook (POH) • Aeronautical Information Publication (AIP) • charts • operations manuals • approved checklists • workplace procedures and instructions and job specification • induction and training materials

RANGE STATEMENT

Applicable regulations and legislation may include:

- conditions of service, legislation and industrial agreements including workplace agreements and awards
- 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

Unit Sector(s)

Not applicable.

Competency field

Competency Field

W - Equipment and Systems Operations