Australian Government

Department of Education, Employment and Workplace Relations

AVIY4059A Pilot a helicopter during roping operations

Revision Number: 1

AVIY4059A Pilot a helicopter during roping operations

Modification History

Not applicable.

Unit Descriptor

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This unit involves the skills and knowledge required to operate a helicopter during roping operations including planning, pre/post briefing, roping and abnormal 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 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), Night VFR; and aircraft control principles, regulations, safety codes, protocols and procedures required when operating a helicopter at low level and piloting a helicopter during roping operations.

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

Operations are conducted as part of commercial or military aircraft activities across a variety of operational contexts within the Australian aviation industry.

Work is performed under limited supervision.

This unit of competency is nominally packaged a 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 roping operations	1.1 Tasking requirements are identified 1.2 Crew roping personnel and equipment required to ensure safe achievement of task are determined 1.3 Helicopter performance is interpreted and calculated to ensure suitability of aircraft for roping operations 1.4 Transit, roping operation communications and recovery is planned in accordance with workplace procedures 1.5 Roping personnel qualifications are confirmed 1.6 Roping operations abnormal and emergency situation actions are planned
2 Conduct pre-flight briefings for roping operations	2.1 Requirements of the roping operation are explained and confirmed 2.2 Location, terrain features (sea state as applicable) and forecast weather conditions are obtained and confirmed 2.3 Timings, route(s), airspeeds and altitudes are confirmed 2.4 Pilot, crew and roping personnel responsibilities and communication procedures are explained 2.5 Roping operation emergency procedures are explained
3 Operate the helicopter during roping operations	3.1 Site inspection, approach and hover heading are determined in accordance with operational requirements 3.2 Descent and approach is controlled to terminate over the roping site 3.3 Adequacy of hover power margin and control limits to perform roping operations is checked and maintained 3.4 Control is applied to helicopter to maintain position over roping site 3.5 Obstacle clearances are maintained during roping operations 3.6 Crewmember is directed/cleared to deploy ropes 3.7 Roping team is directed when clear to perform roping operation in accordance with workplace procedures 3.8 Ropes are recovered/detached and site vacated in accordance with workplace procedures
4 Manage abnormal and emergency situations during roping operations	4.1 Helicopter control is maintained 4.2 Abnormal or emergency situations are identified and managed in accordance with workplace procedure and Flight Manual/Pilot's Operating Handbook
5 Conduct post-flight briefings for roping operations	5.1 Operating procedures and outcomes of the flight are reviewed and analysed 5.2 Effectiveness, efficiency and performance of equipment is

ELEMENT	PERFORMANCE CRITERIA
	analysed and 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:

- Relevant sections of Civil Aviation Safety Regulations and Civil Aviation Orders
- Relevant OH&S and environmental procedures and regulations
- In Defence context, relevant Defence Orders and Instructions
- Communication procedure and terminology applicable to roping operations
- Engine performance checks for the helicopter type to be flown
- Aircraft performance calculations (for all phases of flight)
- Internal and external load limitations for the helicopter type to be flown including weight and balance consideration
- Functions and effects of all aircraft controls and instruments
- Principles of aerodynamics
- Control effectiveness in all phases of flight
- Hazards, limitations and problems that can occur when operating an aircraft during roping operations
- Rope and attaching point limitations
- Helicopter dimensions

Required skills:

- Solve problems associated with the operation of a helicopter during roping operations
- Identify and assess vertical, horizontal and relative spatial distances in relation to the aircraft fuselage, rotor system, mission and/or operational stores and equipment with regard to potential obstacles to the safety of flight
- React appropriately to avoid hazardous situations and/or dangerous situations that pose risks to safety of flight and personnel
- Maintain situational awareness
- Use instruments to monitor helicopter performance during roping operations
- Read and interpret instructions, procedures and information relevant to the operation of a helicopter during roping operations
- Apply knowledge to the operation of a helicopter during roping operations
- Identify and justify a decision to operate a helicopter during roping operations
- Interpret hover performance and power available/power required from graphs/charts
- Communicate effectively with others when operating a helicopter during roping operations
- Complete documentation related to operating a helicopter during roping operations

REQUIRED KNOWLEDGE AND SKILLS

- Operate electronic communication equipment to required protocol
- Work collaboratively with others when operating a helicopter during roping operations
- Adapt appropriately to cultural differences in the workplace, including modes of behaviour and interactions with others
- Apply reporting procedures for identified problems that may occur when operating a helicopter during roping operations
- Implement contingency plans for unexpected events that may arise when operating a helicopter during roping operations
- Apply precautions and required action to minimise, control or eliminate hazards that may exist when a helicopter is performing roping operations
- 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 operating a helicopter during roping operations

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 • following relevant legislation and workplace procedures • planning roping operations including all sub-tasks and actions in the event of abnormal and emergency roping operations situations • conducting pre-flight and post-flight roping operations briefings including all sub-tasks • operating the helicopter during roping operations including all sub-tasks • indentifying and managing abnormal and emergency situations in accordance with workplace procedures and Flight Manual/Pilot's Operating Handbook
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.

Tasks may be undertaken in:	• variable weather conditions in accordance with Day Visual Flight Rules and Night VFR
Performance may be demonstrated in:	• single engine helicopter • multi engine helicopter • single main rotor helicopter • multi main rotor helicopter • variable air traffic conditions • variable flight situations • abnormal situations
Performance may be demonstrated on a helicopter with:	• fully functioning dual controls • an electronic intercom system • dual control brakes • wheeled and/or skidded undercarriages • night aided vision devices
Night VFR environment may include:	• unaided • aided utilising night vision devices
Operational environments may include:	• unprepared landing sites • confined areas • unknown landing sites • pinnacles • embarked/sea platforms • marine environments
Crew may include:	• single pilot • multi crew
Limitations may be imposed by:	• local noise abatement requirements and curfews
Roping may include:	• rappelling • fast rope
Checklists may include:	• Flight Manual/Pilot's Operating Handbook • approach and landing • hover • pre-roping
Classes of airspace are:	• those designated by the Civil Aviation Safety Authority • restricted and danger areas • Military control zones

RANGE STATEMENT

Operational hazards during low level operations may include:	• Air Defence identification zones • structures • other aircraft • loose objects • birds • engine salt ingestion • trees • dust • low visibility • turbulence • wind strength • sea state
Guidance during low level operations may be provided by:	• air traffic control instructions • light signals • aerodrome markings
Procedures for maintaining compliance with airspace requirements are:	• geographical limits of the flight area are demonstrated on a chart • prominent geographical features are identified using a chart • the limits of the flight area are identified on the ground • the position of controlled airspace is determined using a chart and geographical features • restricted areas are identified using a chart and geographical features • departure from the circuit (roping) area and transition to the flight area is completed without incident • departure from the flight area and transition to the circuit (roping) area is completed without incident
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
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) • Manual of Standards - Pilot Licensing (MOS-PL) • Aeronautical Information Publication (AIP)

RANGE STATEMENT

Applicable regulations and legislation may include:	• En Route Supplement Australia (ERSA) • charts • operations manuals • approved checklists • workplace procedures and instructions and job specification • induction and training materials • 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
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