

<b>Title</b>	<b>Demonstrate knowledge of human factors for commercial aircraft operations</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>8</b>

<b>Purpose</b>	People credited with this unit standard are, for commercial aircraft operations, able to demonstrate knowledge of: general human factors; physiology and the effects of flight; flying and health; aviation psychology; ergonomics in relation to flying; and first aid and survival.
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<b>Classification</b>	Aviation> Aircraft Operation
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 This unit standard is aligned with the relevant parts of the prescribed syllabi of the Civil Aviation Authority of New Zealand (CAA) for Subject No 34 for a commercial pilot licence. Credit will be awarded on meeting the requirements of the CAA-approved assessment or examination.
- 2 Commercial aircraft operations are those which are performed for hire or reward.
- 3 Definitions, abbreviations, and acronyms used in this unit standard are to be found in:
  - a *Civil Aviation Rules Part 1* on the CAA website at <https://www.caa.govt.nz>; and
  - b *Aeronautical Information Publication (AIP)* published by Aeronautical Information Management (AIM), PO Box 294, Wellington 6140 or on the AIM website at <http://www.aip.net.nz>.
- 4 Evidence presented for assessment against this unit standard must be in accordance with industry texts and standards.
- 5 All references to the CAA refer specifically to the Civil Aviation Authority of New Zealand.
- 6 Industry standards and recommended practices are those set in place by the CAA.
- 7 Industry texts may include but are not limited to – aircraft flight manuals, CAA Rules, CAA Advisory Circulars, CAA Flight Test Standards Guides, operator exposition, New Zealand Defence Force (NZDF) Policy.
- 8 In the context of this unit standard the term *human factors* are about human performance and human limitations both in the air and on the ground. It encompasses the medical, psychological, ergonomic, and engineering aspects associated with commercial aircraft operations.

- 9 For the purpose of this unit standard, *knowledge* refers to the knowledge, understanding, and application of the subject matter.
- 10 Industry requirements are that the candidate must meet the eligibility requirements of the Civil Aviation Act 2023 and the Civil Aviation Rules Part 61 for a commercial pilot licence.
- 11 In accordance with the provisions of Civil Aviation Rule Part 61 for Pilot Licences and Ratings and the associated Advisory Circulars, the CAA accepts specific NZDF flight crew qualifications and associated flight experience towards a number of the prescribed eligibility requirements for the issue of a New Zealand pilot licence and associated ratings.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of general human factors for commercial aircraft operations.

#### Performance criteria

- 1.1 Airmanship, professionalism, and responsibility are defined and described.
- 1.2 Human factors, models and programmes are defined and described.

### Outcome 2

Demonstrate knowledge of physiology and the effects of flight for commercial aircraft operations.

#### Performance criteria

- 2.1 The atmosphere is described.
- 2.2 Circulation and respiratory systems are described.
- 2.3 The causes and effects of hypoxia are defined and described.
- 2.4 The causes and effects of hyperventilation are defined and described.
- 2.5 The causes and effects of entrapped gases are defined and described.
- 2.6 The causes and effects of decompression sickness are defined and described.
- 2.7 Vision and visual perception are described and identified.
- 2.8 Hearing and balance are described.
- 2.9 Spatial orientation is defined and described.

- 2.10 Gravitational forces are explained.
- 2.11 Motion sickness is described.
- 2.12 Flight anxiety is explained and described.

### **Outcome 3**

Demonstrate knowledge of flying and health for commercial aircraft operations.

#### **Performance criteria**

- 3.1 Fitness requirements to fly are described.  
Range includes but is not limited to – medical fitness.
- 3.2 The effects of alcohol and drugs on pilot performance are explained.
- 3.3 Effects of blood donation on the body are described.  
Range includes but is not limited to – recommended time period between donating blood and flying.
- 3.4 Environmental hazards present in the aviation environment are described.
- 3.5 Stress management is defined and described.
- 3.6 Sleep and fatigue (alertness management) are described and explained.
- 3.7 The effects and process of normal ageing are described.  
Range may include but is not limited to – physiological and behavioural changes.

### **Outcome 4**

Demonstrate knowledge of aviation psychology for commercial aircraft operations.

#### **Performance criteria**

- 4.1 Information processing is identified and described.
- 4.2 Situational awareness is defined and described.
- 4.3 Judgement and decision making is described and explained.
- 4.4 Social psychology and flight deck management are defined and explained.  
Range may include but is not limited to – crew resource management, teamwork, leadership, communication.
- 4.5 Threat and error management is explained and described.

4.6 A safety culture is identified and described.

Range may include but is not limited to – safety reporting in aviation.

## Outcome 5

Demonstrate knowledge of ergonomics in relation to flying for commercial aircraft operations.

### Performance criteria

5.1 Flight deck design is described and explained.

Range may include but is not limited to – biomechanics, anthropometry.

5.2 Design of controls is explained.

5.3 Instrumentation, displays, and alerts are explained and described.

5.4 The rationale for the design of flight documents and the procedures for using them are explained and described.

Range may include but is not limited to – normal checklists, emergency checklists; elements of an effective checklist – colour, size, font size; dangers of checklist complacency.

## Outcome 6

Demonstrate knowledge of first aid and survival for commercial aircraft operations.

### Performance criteria

6.1 Basic principles of first aid are described.

6.2 Survival requirements are stated and explained.

<b>Replacement information</b>	This unit standard replaced unit standard 15361.
<b>Planned review date</b>	31 December 2028

**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	18 June 2010	31 December 2018
Revision	2	18 February 2011	31 December 2018
Review	3	20 October 2016	31 December 2027
Review	4	28 September 2023	31 December 2027
Review	5	29 May 2025	N/A

**Consent and Moderation Requirements (CMR) reference**

0028

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Comments on this unit standard**

Please contact Ringa Hora Services Workforce Development Council [qualifications@ringahora.nz](mailto:qualifications@ringahora.nz) if you wish to suggest changes to the content of this unit standard.