

Title	Demonstrate knowledge of aeroplane principles of flight and performance for commercial aeroplane operations		
Level	5	Credits	15

Purpose	People credited with this unit standard are able to demonstrate knowledge of aeroplane principles of flight and performance for commercial aeroplane operations in accordance with Subject No 22.
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Classification	Aviation > Aircraft Operation
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Available grade	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 22 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 All references to the CAA refer specifically to the Civil Aviation Authority of New Zealand.
- 5 Industry standards and recommended practices are those set in place by the CAA.
- 6 Industry texts may include but are not limited to – aircraft flight manuals, CAA Rules, CAA Advisory Circulars, CAA Flight Test Standards Guides, operator exposition.
- 7 For the purpose of this unit standard, *knowledge* refers to the knowledge, understanding, and application of the subject matter.
- 8 Industry requirements are that the candidate must meet the eligibility requirements of the Civil Aviation Act 1990 and the Civil Aviation Rules Part 61 for a commercial pilot licence.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of aircraft principles of flight and performance for commercial aeroplane operations in accordance with Subject No 22.

Performance criteria

- 1.1 Aeroscience is defined and described in accordance with industry texts and standards.
- Range may include but is not limited to – units of measurement, speed, velocity, acceleration, Newton's three laws of motion.
- 1.2 The atmosphere is described in accordance with industry texts and standards.
- Range may include but is not limited to – air density, ISA sea-level pressure, density altitude.
- 1.3 Basic aerodynamic theory and its associated principles for aviation are described in accordance with industry texts and standards.
- 1.4 Lift and its associated principles for aviation are described in accordance with industry texts and standards.
- 1.5 Drag and its associated principles for aviation are described in accordance with industry texts and standards.
- 1.6 Lift augmentation and its principles and effects on flight are explained in accordance with industry texts and standards.
- Range may include but is not limited to – lift augmentation devices.
- 1.7 Flight controls and their principles of operation are described in accordance with industry texts and standards.
- 1.8 Stalling and spinning and their principles are described in accordance with industry texts and standards.
- 1.9 Straight and level flight is described in accordance with industry texts and standards.
- 1.10 Climbing and descending, and the factors affecting climb performance, are described in accordance with industry texts and standards.
- 1.11 Turning is described in accordance with industry texts and standards.
- 1.12 Propeller theory and the principles of propeller operation are described in accordance with industry texts and standards.

1.13 Stability is defined and explained in accordance with industry texts and standards.

Range may include but is not limited to – static stability, dynamic stability, longitudinal stability.

1.14 Asymmetric flight is explained in accordance with industry texts and standards.

1.15 Aeroplane range and endurance are defined and explained in accordance with industry texts and standards.

1.16 Aeroplane performance is defined and explained in accordance with industry texts and standards.

Range may include but is not limited to – take-off distance required, take-off distance available; wind-component graphs; landing distance.

Replacement information	This unit standard replaced unit standard 15352.
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This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

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

Consent and Moderation Requirements (CMR) reference	0169
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.