

<b>Title</b>	<b>Demonstrate aircraft technical knowledge and principles of flight for private aircraft operations</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	People credited with this unit standard are, for private aircraft operations in accordance with Subject No 12, able to demonstrate: aircraft technical knowledge used; and knowledge of the principles of flight.
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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 12, for a private pilot licence. Credit will be awarded on meeting the requirements of the CAA approved assessment or examination.
- 2 Private aircraft operations are those which are not 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, standards and Subject No. 12.
- 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, NZCAA Flight Test Standard Guides, operator exposition.
- 8 For the purpose of this unit standard, *knowledge* refers to the knowledge, understanding, and application of the subject matter.
- 9 Industry requirements are that the candidate must meet the eligibility requirements of the Civil Aviation Act 1990 and the Civil Aviation Rule Part 61 for a private pilot licence.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate aircraft technical knowledge used in private aircraft operations.

#### Performance criteria

- 1.1 Major components of a conventional airframe, the basic operation and function, and the principles involved for the different types of aircraft used for private operations are described.
- Range may include but is not limited to – monoplane (high wing, low wing); biplane; fuselage, wings, tail section, control surfaces, undercarriage, powerplant.
- 1.2 Aircraft piston engine types, the purpose of major components, and the basic principle of operation are identified and explained.
- Range may include but is not limited to – four stroke, in-line, horizontally opposed, radial.
- 1.3 Carburation and its principles and operation are described.
- 1.4 Fuel systems and fuel, components, and their principles and operation are described.
- 1.5 Lubrication and cooling systems, their components, and their principles are identified and explained.
- 1.6 Engine handling and its principles are explained.
- 1.7 The electrical system, major components, and their principles are explained.
- 1.8 Pressure instruments and their principles of operation are described.
- 1.9 Gyroscopic instruments and their properties and principles of operation are explained.
- 1.10 Magnetic compass and its principles are described.

### Outcome 2

Demonstrate knowledge of the principles of flight.

#### Performance criteria

- 2.1 The atmosphere is described.
- Range may include but is not limited to – principle gases; pressure, temperature, air density.

- 2.2 Basic aerodynamic theory and its associated principles for aviation are defined and described.
- 2.3 Flying controls and their principles of operation are explained.
- 2.4 Straight and level flight is described.
- 2.5 Climbing and descending, and the factors affecting climb performance, are defined and explained.
- 2.6 Turning is described.
- 2.7 Stalling and spinning and their principles are described.
- 2.8 Propeller theory and the principles of operation are explained.
- 2.9 Take-off and landing performance and their principles are explained.
- 2.10 Aircraft loading and its principles are defined and calculated.

<b>Planned review date</b>	31 December 2028
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	26 March 2007	31 December 2018
Review	2	20 October 2016	31 December 2027
Review	3	28 September 2023	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0028
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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.