

Title	Demonstrate general aircraft technical knowledge for a commercial pilot licence (aeroplane)		
Level	5	Credits	15

Purpose	People credited with this unit standard are, in accordance with Subject No 26, for commercial aircraft operations, able to demonstrate knowledge of aeroscience, aircraft performance, airframes, aircraft power plants, and aircraft ancillary systems.
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Classification	Aviation > Aircraft Operation
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Available grade	Achieved
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Entry information	
Recommended skills and knowledge	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.

Explanatory notes

- 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 26 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.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of aerospace for commercial aircraft operations in accordance with Subject No 26.

Evidence requirements

- 1.1 The properties, principles and characteristics of advanced electricity and magnetism are described and explained in accordance with industry texts and standards.
- 1.2 Pascal's principle is stated in accordance with industry texts and standards.

Outcome 2

Demonstrate knowledge of aircraft performance for commercial aircraft operations in accordance with Subject No 26.

Evidence requirements

- 2.1 Weight and balance are defined and explained in accordance with industry texts and standards.

Outcome 3

Demonstrate knowledge of airframes for commercial aircraft operations in accordance with Subject No 26.

Evidence requirements

- 3.1 The structure of airframes is described and the application of load is explained in accordance with industry texts and standards.

Range construction styles, wing construction, tail plane, fin, control surfaces.
- 3.2 Control systems and their method of operation are described in accordance with industry texts and standards.

Range piston engine light twin aeroplane.

Outcome 4

Demonstrate knowledge of aircraft power plants for commercial aircraft operations in accordance with Subject No 26.

Evidence requirements

- 4.1 Aircraft engine types are distinguished in accordance with industry texts and standards.
- Range reciprocating (piston), four stroke (piston).
- 4.2 Basic differences between reciprocating (piston) and gas turbine (jet) engines are explained in accordance with industry texts and standards.
- 4.3 Aircraft engine performance is defined and explained in accordance with industry texts and standards.
- 4.4 Carburation, its operation, and carburettor components are described and explained in accordance with industry texts and standards.
- Range fuel-air mixture.
- 4.5 Fuel injection systems and their differences from carburettor systems are described and explained in accordance with industry texts and standards.
- 4.6 The operation, advantages and limitations of supercharging are explained in accordance with industry texts and standards.
- 4.7 Exhaust systems are described and explained in accordance with industry texts and standards.
- 4.8 Ignition systems, their operation, and components are described and explained in accordance with industry texts and standards.
- Range magneto, solid state.
- 4.9 Propeller theory, and the principles and methods of operation are explained in accordance with industry texts and standards.

Outcome 5

Demonstrate knowledge of aircraft ancillary systems for commercial aircraft operations in accordance with Subject No 26.

Evidence requirements

- 5.1 Hydraulic systems and their components are described and explained in accordance with industry texts and standards.
- 5.2 Pneumatic systems and their operation are explained in accordance with industry texts and standards.
- 5.3 Electrical systems, their components, and operation are defined and explained in accordance with industry texts and standards.

- 5.4 Landing gear, its components, and operation are described and explained in accordance with industry texts and standards.
- Range fixed, retractable.
- 5.5 Aircraft wheel brake systems and their operation are described and explained in accordance with industry texts and standards.
- 5.6 Fuels, fuel systems and their components are explained and described in accordance with industry texts and standards.
- 5.7 Fuel pumps are distinguished and explained in accordance with industry texts and standards.
- Range gravity-feed, pump-feed.
- 5.8 Fuel tanks and their management are described in accordance with industry texts and standards.
- 5.9 Engine cooling systems, their components, and operation are explained in accordance with industry texts and standards.
- 5.10 Engine lubrication systems are explained in accordance with industry texts and standards.
- 5.11 Fire warning systems are outlined in accordance with industry texts and standards.
- 5.12 Fire protection systems are described in accordance with industry texts and standards.
- 5.13 Ice and rain protection systems, their components, and operation, are explained in accordance with industry texts and standards.
- 5.14 Engine instruments and their principles of operation are explained and described in accordance with industry texts and standards.
- 5.15 Pressure instruments and their operation are explained and described in accordance with industry texts and standards.
- 5.16 EFIS instrument displays, their components, and operation are described in accordance with industry texts and standards.
- 5.17 Magnetic instruments and their principles of operation are described and explained in accordance with industry texts and standards.
- 5.18 Types of gyroscopic instrument, their operation and components are stated, described and explained in accordance with industry texts and standards.

- 5.19 GNSS systems, their principles and operation are described and explained in accordance with industry texts and standards.
- 5.20 TCAS and GPWS systems, their functions, and operation are described in accordance with industry texts and standards.
- 5.21 Flight director/auto-pilot systems, their functions, and operation are described and explained in accordance with industry texts and standards.
- 5.22 Oxygen systems are explained in accordance with industry texts and standards.

Replacement information	This unit standard replaced unit standard 15357.
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Planned review date	31 December 2021
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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	N/A

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>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact ServiceIQ qualifications@serviceiq.org.nz if you wish to suggest changes to the content of this unit standard.