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| Title | Demonstrate knowledge of air navigation and flight planning for commercial aircraft operations | | |
| Level | 5 | Credits | 15 |

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| Purpose | People credited with this unit standard are, in accordance with Subject No 18, for commercial aircraft operations, able to: demonstrate knowledge of the fundamentals of air navigation; demonstrate knowledge of aeronautical charts; use a circular slide rule to perform calculations; demonstrate knowledge of flight planning; and demonstrate knowledge of visual navigation procedures. |
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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 18 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 the fundamentals of air navigation in accordance with Subject No 18.

Performance criteria

- 1.1 The form of the earth is described in accordance with industry texts and standards.
- Range may include but is not limited to – parallels of latitude, meridian of longitude, Greenwich (Prime) Meridian.
- 1.2 Direction on the earth is described in accordance with industry texts and standards.
- Range may include but is not limited to – relative bearing, back bearing, limitations when deriving bearings and distances from a chart.
- 1.3 Distance on the earth is defined and calculated in accordance with industry texts and standards.
- 1.4 Aircraft speed and velocity are defined and explained in accordance with industry texts and standards.
- 1.5 Aircraft position referencing is defined and described in accordance with industry texts and standards.
- 1.6 Altimetry is defined and described in accordance with industry texts and standards.
- 1.7 Time is defined and explained in accordance with industry texts and standards.
- Range may include but is not limited to – Local Mean Time (LMT), Coordinated Universal Time (UTC), New Zealand Standard Time (NZST), New Zealand Daylight Time (NZDT).

Outcome 2

Demonstrate knowledge of aeronautical charts in accordance with Subject No 18.

Performance criteria

- 2.1 Properties and principles of aeronautical charts are described in accordance with industry texts and standards.

- 2.2 Aeronautical charts are interpreted and described in accordance with industry texts and standards.

Range includes but is not limited to – operational data.

Outcome 3

Use a circular slide rule to perform calculations in accordance with Subject No 18.

Range the 1 in 60 rule.

Performance criteria

- 3.1 Computations are calculated in accordance with industry texts and standards.

Range may include but is not limited to – mathematical equations; time, speed or distance; fuel consumption; fuel burn rate; fuel endurance; conversions.

- 3.2 The triangle of velocities is defined, calculated, and solved in accordance with industry texts and standards.

Outcome 4

Demonstrate knowledge of flight planning in accordance with Subject No 18.

Performance criteria

- 4.1 Route selection factors are described in accordance with industry texts and standards.

- 4.2 Chart preparation is demonstrated in accordance with industry texts and standards.

- 4.3 Flight plan preparation is demonstrated in accordance with industry texts and standards.

- 4.4 Fuel planning is calculated in accordance with industry texts and standards.

Range may include but is not limited to – expected fuel burn, minimum fuel required.

Outcome 5

Demonstrate knowledge of visual navigation procedures in accordance with Subject No 18.

Performance criteria

- 5.1 The techniques and procedures for VFR are described in accordance with industry texts and standards.

5.2 Special procedures are described in accordance with industry texts and standards.

Range may include but is not limited to – re-establishing position if lost, diverting, navigating at low level.

5.3 Enroute diversion calculations are defined and performed in accordance with industry texts and standards.

5.4 The use of the Global Navigation Satellite System is explained in accordance with industry texts and standards.

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| Replacement information | This unit standard replaced unit standard 15362. |
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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 |

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| 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>.